

1955

# Landscape Architecture in Relation to Contemporary Elementary Schools.

Robert Philip Ealy

*Louisiana State University and Agricultural & Mechanical College*

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LANDSCAPE ARCHITECTURE IN RELATION TO  
CONTEMPORARY ELEMENTARY SCHOOLS

A Dissertation

Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
in partial fulfillment of the  
requirements for the degree of  
Doctor of Philosophy

in

The Department of Botany, Bacteriology, and Plant Pathology  
and  
The Department of Horticulture

by

Robert Phillip Ealy  
B. S., Oklahoma A. & M. College, 1941  
M. S., Kansas State College, 1946  
August, 1955

## ACKNOWLEDGMENT

The author wishes to express his sincere appreciation to Dr. Robert S. Reich, under whose direction this research was conducted, for helpful criticism of the research effort and the manuscript. He is also grateful to Dr. Ralph L. Wickiser for his aid in the organization of the manuscript; to Dr. S. J. P. Chilton and Professor B. H. Singletary for their kind cooperation; to Dr. R. H. Hanchey for his beneficial criticism; to Professor Hideo Sasaki of the Harvard School of Design for his helpful suggestions relative to the survey procedure; and to William W. Caudill of Bryan, Texas for school plans used.

The author also wishes to acknowledge and thank the various professional educators, architects, landscape architects, parents, and others who participated in the survey. His special thanks go to his wife, Carol, for typing the manuscript and for valuable encouragement.

The author wishes further to thank the following publishers and individuals for permission to quote from certain references used extensively in this dissertation and appropriately footnoted:

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The School Executive, New York 16, N. Y.

The Chicago Daily News, Chicago 6, Ill.

Mrs. A. B. Moehlman, Naples, Florida, The Public Elementary School Plant, by C. L. Spain, A. B. Moehlman, and F. W. Frostic.

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## ABSTRACT

Contemporary school architecture, emphasizing physical and visual contact with the out-of-doors and a new educational philosophy pointed toward the development of the whole child--mentally, physically, socially, and emotionally, call for a reappraisal of the factors considered in the development of the site. The site planning of most contemporary elementary schools in this area is either entirely lacking or inadequate. Over a period of three years the author visited and photographed such schools in Oklahoma, Kansas, Texas, Arkansas, Mississippi, and Louisiana, bearing out the need for competent landscape architectural services.

The literature contains little information on landscape architecture in relation to contemporary elementary schools. Therefore, in order to obtain the latest concept on this subject a selected group of 241 people in each of several fields of work related to the problem were contacted by means of personal interviews, personal correspondence, and through the medium of a balanced questionnaire designed to cover an equal set of factors under educational, functional, visual, and community use needs. The groups covered included leading landscape architects, architects, school administrators, specialists, and representative teachers, parents, and children.

A fresh approach to the problem is apparent in an analysis of the data obtained. The whole concept is broadened in keeping with the contemporary architecture and the new educational philosophy. School grounds, once thought of merely in terms of a place to erect a building and a space in which to release the children at recess are now coming to be considered an integral part of the educational plan. The data obtained indicate that

the people contacted were quite interested in the problem. The percentage of completed questionnaires returned was relatively high--65%. The returns indicated that preferred site design factors were as follows:

Educational

1. areas for group play
2. areas for individual play
3. outdoor teaching areas

Functional

1. convenient circulation
2. grading for proper drainage and usability
3. ease of supervision

Visual

1. integration of buildings and site
2. good relationships between indoors and outdoors
3. enrichment of landscape

Community use

1. playgrounds
2. service facilities
3. outdoor teaching areas for group meetings

General considerations, as designing to provide for maximum safety, minimum maintenance, and future development, were emphasized.

These data indicate a trend toward a new approach to the problem and the relative value of the design factors listed. This information can be used to help determine the amount of space allotted to the various design factors as well as the order of development in case of space or budget limitations. Using this information as a guide and fitting the plan to the specific site and program needs, the landscape architect working in conjunction with the building architect and the school representatives can provide an educational environment of the highest caliber.

A site plan for a typical contemporary elementary school (Will Rogers, Stillwater, Oklahoma) is presented to illustrate the application of these principles.

## CHAPTER I

### INTRODUCTION TO THE PROBLEM

Everyone truly concerned with the future of the American way of life recognizes the importance of the role of education in preparing America's youth for their part in world affairs. The quality of the product is dependent upon people--parents whose children go to our schools, the children themselves, people who serve as administrators in supplying needed facilities, in directing our schools, and in teaching our children. Each should contribute to the provision of the best possible environment in which the educational process takes place. Seventy-five years ago Downing expressed his feeling about education in these words: "If there is one thing on which the usefulness, the true greatness, and the permanence of a free government depends more than another, it is education."<sup>1</sup>

Public education is the life blood of our communities and our democracy. . . . The security of this country and the hope of the free world depend in great measure upon the character, the ideas, the ingenuity and the competence of each successive generation of young people.<sup>2</sup>

The President of the United States of America has focused attention upon the problem of what needs to be done to provide adequate facilities for the education of the ever-increasing tidal wave of children now crowding

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<sup>1</sup>A. J. Downing, Rural Essays (New York: R. Worthington, 1881), p. 265.

<sup>2</sup>Shelby M. Jackson, "Louisiana Schools and the Road Ahead," State Department of Education Mimeographed Pamphlet, (Spring, 1955). P. 2.



into our elementary schools by calling the White House Conference on Education for 1955. The major emphasis will be upon the serious problems of teacher and classroom shortages which now face the nation, as pointed out by Oveta Culp Hobby, the Secretary of Health, Education and Welfare.<sup>3</sup>

The enrollment figures for 1954 show that 21 percent of the country's total population is enrolled in public and private schools.<sup>4</sup> Educators have been aware of this oncoming influx for some time but the general public had done comparatively little about it until a few years ago. The journalism profession has sought to aid in the work by publishing talks and statistics pointing out the needs. National coverage magazines, such as Time, Life, Collier's, and others have published articles about the new contemporary schools being designed and built to fit these needs and of the necessity for more of them. In spite of the billions of dollars being spent we have not even caught up with present demand.

Office of Education statistics show that enrollment for the country as a whole in the fall of 1954 totaled 28,525,990 pupils. Included in this figure were 21,309,172 elementary school children, 2,197,624 of which were in excess of normal school plant capacity. A total of 60,005 schoolrooms are scheduled for completion during the 1954-55 school year. Assuming these to be of average size and built as additional facilities, not replacements, they will take care of only about two-thirds of the excess mentioned, to say nothing of the new enrollees

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<sup>3</sup>"Washington Scene," The School Executive, LXXIV (December, 1954), p. 100.

<sup>4</sup>W. G. Carr, "The National Educational Scene," The School Executive, LXXIV (January, 1955), 44.

next year.<sup>5</sup>

A mammoth building program will be required to house our school children. The United States Office of Education estimates that by 1960 we shall need 220,000 classrooms, which°(if they average \$40,000 each, including site and equipment) will cost \$28.8 billion, according to the President of the National Council on Schoolhouse Construction.<sup>6</sup>

The new school buildings being designed and built today are created around a basic educational concept and represent a dramatic new arrangement of classroom units. This was brought to the author's attention very forcibly when his home town "built two of the most advanced elementary school buildings in the country."<sup>7</sup> The old buildings (Plate I, Fig. 1) were out of date, forbidding, gloomy structures, with antiquated, steep staircases and certainly fitted the term "fire-trap." Their ornate exterior facades were impressive and expensive.

A young architect, William W. Caudill, with new ideas about building schools designed for children and fitted to the site and the climate, was commissioned to design the new buildings (Plate I, Fig. 2). They did not look much like the old ones, but now, five years later, Blackwell citizens are thoroughly convinced of their worth.<sup>8</sup> As a result of the

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<sup>5</sup>Samuel Schloss and Carol Jay Hobson, "Fall 1954 Statistics on Enrollment, Teachers, and School Housing in Full-time Public Elementary and Secondary Day Schools," U. S. Dept. of Health, Education and Welfare Circular No. 417, revised. (February, 1955).

<sup>6</sup>Charles D. Gibson, "School Buildings," Architectural Record, CLX (November, 1954), 177.

<sup>7</sup>Walter McQuade, "The Little Red Schoolhouse Goes Modern," Collier's (September 9, 1950), p. 43.

<sup>8</sup>Ibid.

## PLATE I

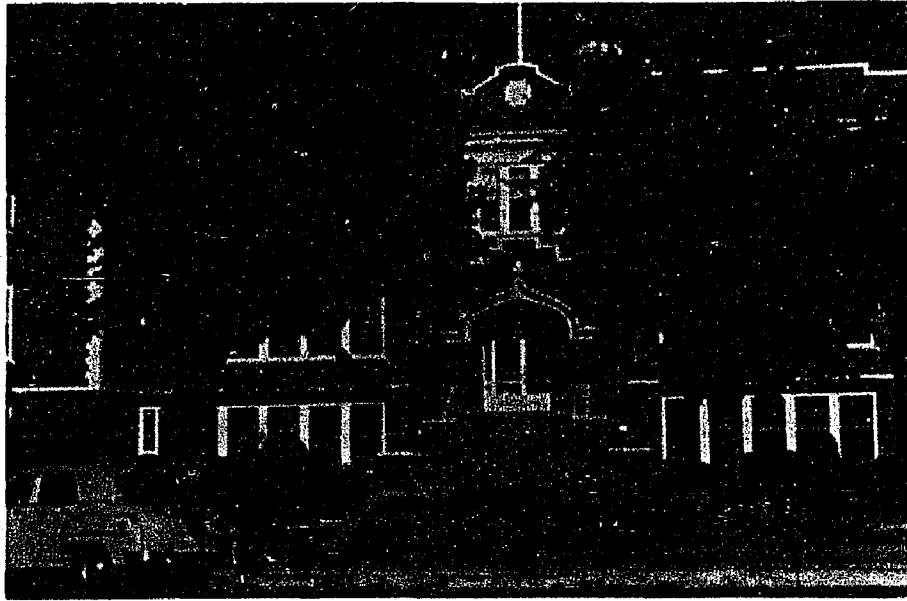


Figure 1. Old "monumental" school building, Blackwell, Oklahoma

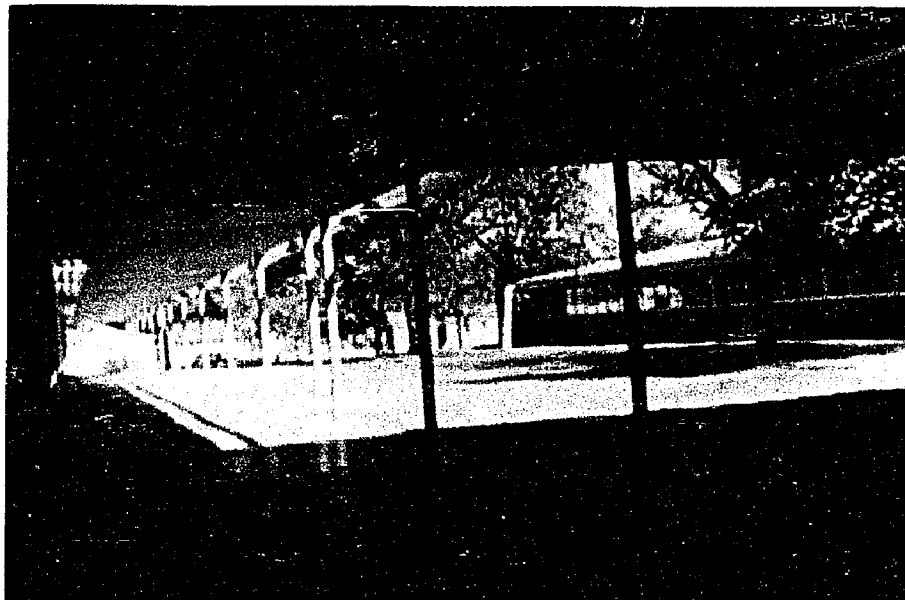


Figure 2. Contemporary elementary school building, Blackwell, Caudill, Rowlett, Scott, & Associates, Architects

work done on the Blackwell schools and others in the Southwest, Life magazine, in an effort to help the classroom shortage problem in the Nation through the presentation of workable, modern school plans, commissioned two leading firms of school architects, Perkins & Will of Chicago, Illinois and White Plains, New York, and Caudill, Rowlett, Scott and Associates of Bryan, Texas and Oklahoma City, to design an elementary school and a junior high school for a feature story in their February 1, 1954 issue. The two firms have designed over 200 such schools in the last five years, representing the most advanced principle of educational design. They emphasize "an architectural awareness that a child's total development--intellectual, physical, social and emotional is essentially shaped in the first school years."<sup>9</sup>

Literally hundreds of contemporary, elementary schools have been built in the last few years and a lot of interest has been fostered in good design by the National Competition for Better School Design, sponsored by The School Executive, published by the American School Publishing Corporation. Caudill et al. have won top awards in two of the four years of competition. Perkins and Will have also won a top award.<sup>10</sup> This competition has provided the stage for the display of some of the finest contemporary school architecture in the United States and Canada. In setting up the plan in 1951 the magazine, The School Executive, worked closely with the American Association of School Administrators. Their announcement read,

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<sup>9</sup>"New Schools, Economy too," Life, (February 1, 1954), p. 74.

<sup>10</sup>"The Parade of Master Builders," The School Executive, LXXIV (March, 1955), 79.

The School Executive is concerned that the hundreds of new school plants which must be constructed shall be designed to meet the needs of communities and modern school programs, and shall utilize materials to provide economical, aesthetic, and socially useful results . . . much more can and must be achieved.<sup>11</sup>

Five American entries and one Canadian entry were selected as outstanding designs from the 109 entries by a panel of judges consisting of three leading architects, one school administrator and the Chief of the School Housing Section of the Office of Education in Washington.

The judges of the 1952 competition emphasized the flexibility of teaching possibilities, zoning of activity spaces, adaptation to the site, and suitability to the climate, as well as economy of construction in their deliberations, and chose five top designs out of 118 entries.<sup>12</sup>

In the 1953 competition 139 entries were considered and the judges mentioned that the most notable change was the affirmation of contemporary architecture. The winning designs had structural clarity and a sensitive relationship between indoor and outdoor surroundings. Buildings fitted their site situations. Each used the outdoors to enhance the environments of the people occupying rooms.<sup>13</sup>

The jury of eminent architects and school administrators in their summation of the 1954 competition felt that the designs indicated a distinct trend to use the outdoors to a greater extent under all climatic conditions. At the same time they felt that many of the sites were poor

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<sup>11</sup>Ibid.

<sup>12</sup>The School Executive, Announcement of the Winners of the First Annual (1951) Competition for Better School Design in the United States and Canada, LXI (March, 1952).

<sup>13</sup>Ibid., LXII (March, 1953)

or difficult to work with for the best results. They<sup>o</sup> suggested that more attention should be given to obtaining sites of a proper size and quality which would prove an economy in the long run.<sup>14</sup>

In reviewing the hundred top schools in the 1954 competition, Kenneth Gibbons, an architect, and Karl Hereford, an educational journalist<sup>15</sup> touched upon a matter of importance ranking close after the classroom and teacher shortage problems--the need for an integrated site plan to include buildings and grounds as one educational unit. They noticed that several of the school plans reflected a greater use of the outdoors through partially-roofed-over play areas, covered outdoor corridors and playsheds. Many classrooms open directly to individual class yards, thus providing additional and "free" educational space. Those trends point out the need for collaboration between architect and landscape architect from the beginning--even before the site is selected. The landscape architect, trained in land use and site planning, can contribute much to the selection of a good site and the handling of the topography and existing vegetation. The landscape architect by training is the one who can achieve the greatest results from the organization of the outdoor teaching spaces.

A few designs suggest a further cooperation with natural site provisions in the layout of recreational fields, parking areas, and experimental gardens. Many sites appear to be under-developed, suggesting that landscaping and site development have a low priority in the

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<sup>14</sup>Ibid., LXIII(March, 1954).

<sup>15</sup>Kenneth Gibbons and Karl Hereford, "A Panorama of 100 New Schools," The School Executive, LXXIV (April, 1955), 70.

distribution of construction funds.

The fact that site design is overlooked on a majority of school sites is not a new concept to the landscape architects and site planners. Robert Royston, of the firm of Eckbo, Royston, and Williams, Landscape Architects of San Francisco and Los Angeles, California, states:

This /problem/ may be attributed to the lack of understanding on the part of leading school administrators as well as the public, of the services of the landscape architect, and of the benefits of complete site development to the community. This lack of understanding has resulted in meager appropriations for site development with the result that a poverty-stricken appearance of school grounds and incompleteness of site are evident everywhere.<sup>16</sup>

In an article on site planning, Paul Tritenbach,<sup>17</sup> landscape architect and site planner for the City of Stockton, California, points out that the services of a landscape architect are often dispensed with as a "frill" and that most of the public thinks anyone can take care of buying and planting trees as if that were everything involved. Usually the janitor, the parent teacher's association, a garden club, or perhaps a nurseryman does just that--plants a few trees, and that is as far as the site planning or landscape design goes. Landscape design encompasses a great deal more than this: organizing space to provide maximum enjoyment for humans which requires careful planning of the site to provide adequate drainage, an interesting topography, convenient circulation, and a useful as well as attractive arrangement of use areas; appropriate surfacing for soil stabilization and beautiful lawns, combined with an organization of enclosures of plants, fences, walls, etc. to define the

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<sup>16</sup>Robert Royston, "Landscaping the School Site," American School and University, XXIV (1952-53), 259-262.

<sup>17</sup>Paul Tritenbach, "Site Plot Planning is not a 'Frill,'" The School Executive, LXXII (July, 1953), 49.

space of the use areas; and lastly, the enrichment of the view through the use of interesting colors, textures and shapes of plants and materials properly arranged for the best effects.

Tritenbach further describes the schools of today as being built with the benefit of the best architects and consultants, and the site development is too frequently left to old-fashioned, piece-meal methods. The result of this is higher maintenance costs and less useful grounds. An educational survey<sup>18</sup> of all the state departments of education in 1934 indicated that 35 of the 48 states had printed standards for elementary school plants--grounds, buildings, and equipment. More than half of the states mentioned landscaping, including trees, shrubs, and flowers, but with little or no details. Of the 35, twenty-three had standards for walks, one for drives, and one for teacher's cars. Less than 25 percent mentioned nature study or garden areas, but over 50 percent mentioned playgrounds and physical education equipment. Fewer than 50 percent referred to use of the school grounds for social or community use activities.

Architects who have studied the problem of fitting their buildings to the site are keenly aware of the need for a good over-all plan for the grounds.

A major consideration, school grounds for health, physical education and community recreation, has received less study than any other facet of school plant design. One apparent reason is that funds are usually not available for the development of grounds because most of the money has already been spent for school construction and equipment. Another reason is that only a limited number

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<sup>18</sup>Haskell Pruett, School Plant Requirements for Standardized Schools (Nashville, Tennessee: George Peabody College for Teachers, 1934). p. 30-36.



of qualified planners in the field have<sup>19</sup> the ability to develop maximum utilization of the land.<sup>19</sup>

Landscape architects are cognizant of the lack of thought given to site design. Williams states, "Because of a lack of adequate funds devoted to schools many necessary facilities are deleted from school-house planning programs. Generally the landscape is the first to be forgotten."<sup>20</sup> Burton<sup>21</sup> refers to his many requests for aid in landscaping from schools where lack of a complete plan at the outset has resulted in costly or irreparable mistakes. White<sup>22</sup> points to the importance of having the people responsible for the building programs to realize the necessity of budgeting for site development.

In the course of this investigation, the author has visited schools in Texas, Oklahoma, Louisiana, Arkansas, and Mississippi and has found the story very much the same. Many of the elementary school grounds are bare, unattractive areas, with little or no thought apparently given to site planning in the arrangement of spaces, provision for outdoor educational facilities or even adequate circulation. Unfortunately, this is as true of many of the newer schools as well as the older school plants. The latter have been described by a landscape architect as "usually ugly architecturally, and located in the middle of a barren waste of cinders,

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<sup>19</sup>Elton R. de Shaw, "Planning the School Grounds," American School and University, XXIV (1951-52), 217-220.

<sup>20</sup>Edward Williams, member of firm Eckbo, Royston and Williams, Landscape Architects, San Francisco and Los Angeles, personal correspondence, May, 1955.

<sup>21</sup>Linus Burton, Extension Landscape Specialist, University of Arkansas, Fayetteville, Arkansas, personal correspondence, January, 1955.

<sup>22</sup>Robert White, Professor of Landscape Architecture, Texas A. & M. College, College Station, Texas, personal correspondence, January, 1955.

brick, or dust. Often the site was inadequate in size, almost completely ungraded, and without any trees or other planting to relieve the bareness. Such a development was naturally a blot on the landscape."<sup>23</sup> The school at Oilton, Oklahoma (Plate II, Fig. 1) is such a site except for the fact that it has a tree--a dead one (too much competition, too little care.) Caudill and Scott refer to this situation by stating,

. . . the typical school building situated in the middle of a bare city block, with no sign of landscaping except possibly a couple of Christmas-tree-like shrubs flanking the entrance and maybe a battered, unhealthy tree, more dust gray than green, is not a functional school. The cinders, the dust, the glare, the noise of surrounding traffic, usually the grimy lump of the building itself do not make the children 'feel good,' and where beauty to help the children learn is missing a necessary part of the school's function is lacking.<sup>24</sup>

Many of the new schools, although of the latest architectural design, are situated in the same bare surroundings (Plates II, III, IV, & V).

Most people concerned with the education of our youth recognize its value and the urgent need for more teachers and classroom facilities, particularly in the elementary school area. Many of the fine, new elementary school buildings recently built are designed for education--not monumental ostentation. This new architecture is particularly designed to relate to the out-of-doors. Now, more than ever before, we need site design to integrate building and grounds into an educational environment conducive to better learning experiences.

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<sup>23</sup>Herbert S. Hare and D. W. Bush, "The Landscape Architect's part in the Development of an Adequate School Ground Program," American School and University, XII (1941), 217-221.

<sup>24</sup>William W. Caudill and Wallie E. Scott, Jr., "Can a Functional School Building be Beautiful," The School Executive, LXXII (October, 1952), 90.

## PLATE II

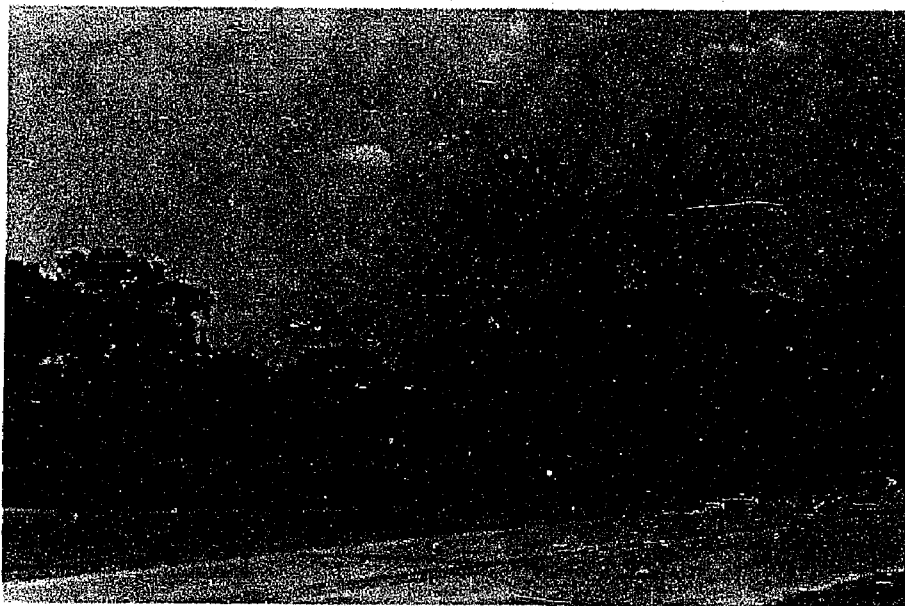


Figure 1. Elementary school ground, Oilton, Oklahoma



Figure 2. Highland Park Elementary School, Stillwater, Oklahoma  
Caudill, Rowlett, Scott, & Associates, Architects

## PLATE III

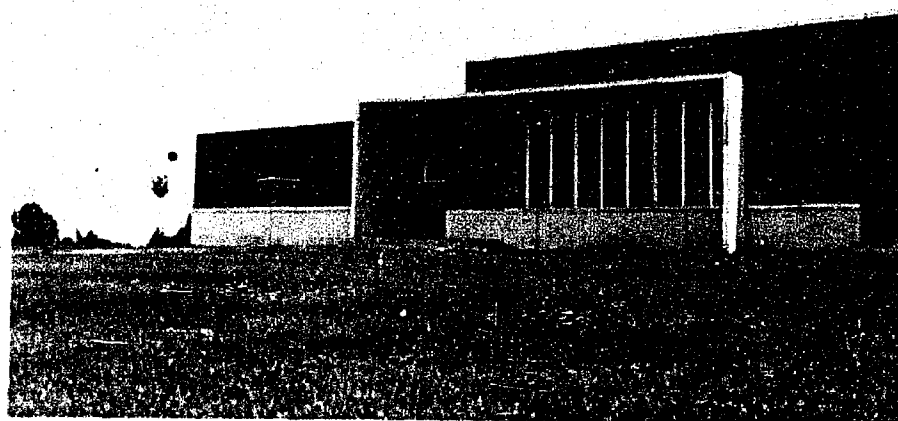


Figure 1. Bradley Elementary School, Jackson, Mississippi

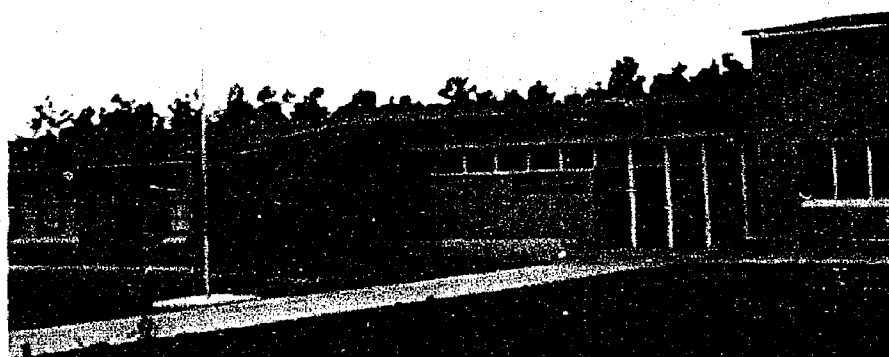


Figure 2. Sykes Elementary School, Jackson, Mississippi

## PLATE IV

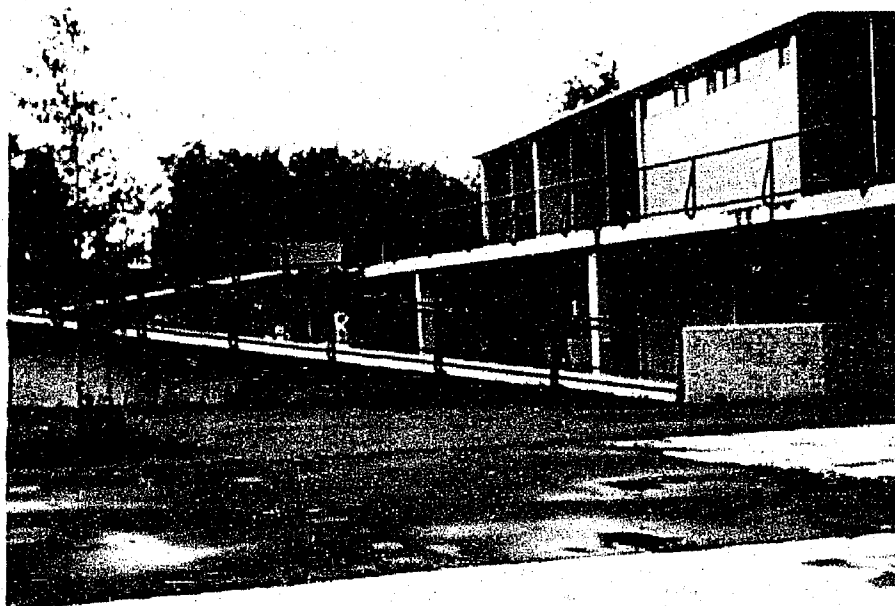


Figure 1. Lafon School, New Orleans, Louisiana  
Curtis & Davis, Architects. Colbert, Associate

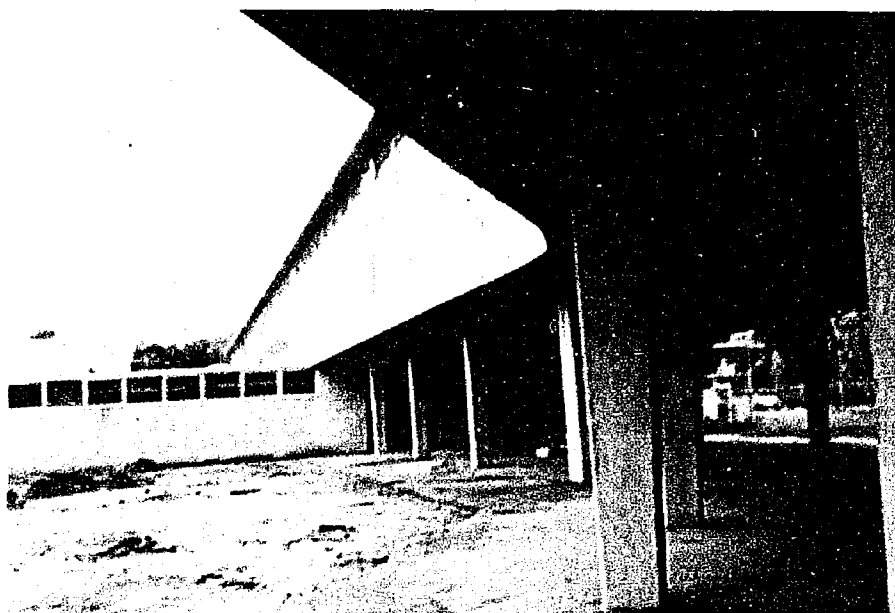


Figure 2. Lafon School

## PLATE V



Figure 1. Elementary School, Paris, Texas



Figure 2. Bingman Elementary School, Beaumont, Texas



Figure 3. Bingman Elementary School, Beaumont, Texas

A great mass of printed words lies in our libraries and millions of words are spoken annually about teaching young children, but except for the realm of physical education, only a minor portion of this is directed toward the opportunities in the outdoors. Only recently have people concerned themselves with the thought that the entire school facility--buildings and grounds--is the stage for the drama of education.

The elementary school years are crucial in the life of a boy or girl. In this formative period children's experiences profoundly affect their physical, social, mental and emotional growth. Today's schools are challenged to provide meaningful experiences that will help these children realize their full potentialities.<sup>25</sup>

This new philosophy of education, encompassing all of a child's needs and not just the "three R's," calls for a fresh appraisal of the total environment in which learning takes place. In turn this action focuses attention upon the good that can be accomplished by the landscape architect's handling of the out-of-doors portion of that environment in a discerning manner. Sorenson<sup>26</sup> points out, and the author agrees, that one should consider the whole physical plant, buildings and grounds, as an educational unit because the learning experience is not confined to the classrooms alone.

The barren wastes surrounding many of our elementary school buildings today certainly provide an unsatisfactory atmosphere in which to lead a growing child to a better understanding of this world in which he lives. Environment plays a large part in molding the young mind and the

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<sup>25</sup>Simon A. McNeely and Elsa Schneider, "Physical Education in the Child's Day," U. S. Department of Health, Education, and Welfare Bulletin No. 14, (1950), 111.

<sup>26</sup>H. E. Sorenson, Associate Dean and Associate Professor of Education, School of Education, Oklahoma A. & M. College, Personal interview.

school, indoors and out, provides a large portion of the child's environment during that impressive age when he is passing through his first years of school. This eager, inquisitive youngster (Plate VI) is curious about everything in the world around him, whether it is ducks on a pond and how they swim, or motors in train engines, or colors in flowers. Luther Burbank once said,

Every child should have mud pies, grasshoppers, waterbugs, elderberries, wild strawberries, acorns, chestnuts, trees to climb, brooks to wade in, water lilies, woodchucks, bats, bees, butterflies, various animals to pet, hay fields, pine cones, rocks to roll, sand, snakes, huckleberries, and hornets, and any child who has been deprived of these has been deprived of the best part of his education.<sup>27</sup>

Today's school board probably would not be willing to provide all of these specific items, but there is a thought here worth serious consideration. Some of the child's contact with nature should come as a logical part of his school studies and the school plant that includes an interesting variety of plants--trees, shrubs, and flowers--will provide the materials for many adventures into the realm of nature (Plate VII).

Galen Jones, Director of the Division of Elementary and Secondary Schools of the Office of Education states,

Physical education is one of the ways in which elementary education seeks to meet the needs of children. A major function of physical education is to help boys and girls keep well and grow strong through participation in well-selected physical activities. It also has other purposes that relate to personal and social development.<sup>28</sup>

Simon McNeely has similar ideas on the subject:

Educators have long believed that the more direct and meaningful the experience, the more probable it is that learning will take

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<sup>27</sup>George D. Butler, Introduction to Community Recreation (New York: McGraw-Hill Book Co., 1940).

<sup>28</sup>McNeely and Schneider, op. cit., p. 111.



## PLATE VI



Figure 1. Inquisitive youth

## PLATE VII

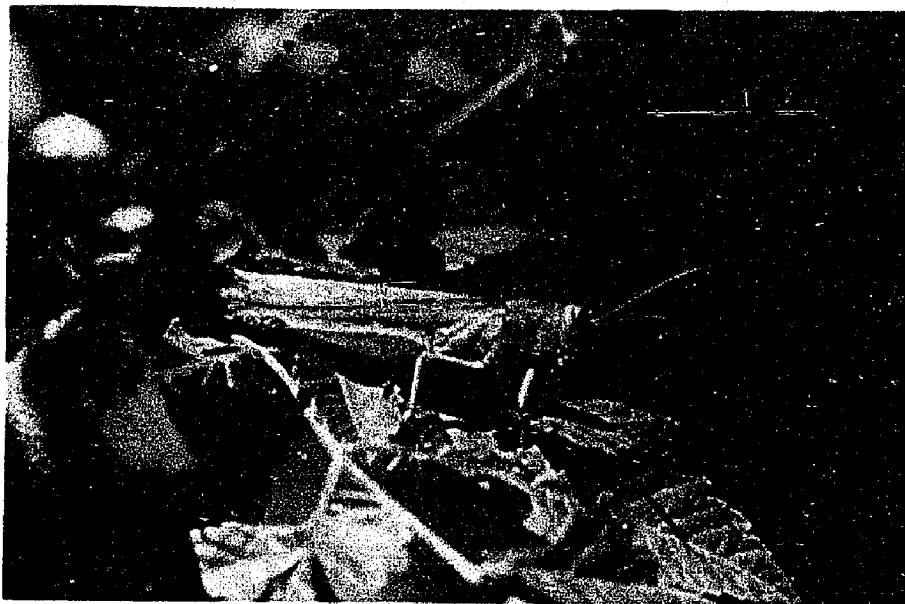


Figure 1. Nature study--insects



Figure 2. Nature study--flowers

place. This would indicate that some things can be learned more effectively outside the classroom. Continuing growth of programs of outdoor education point up this interest in bringing children to the environment which best suits the particular educational objectives. Some of the educational possibilities of outdoor education are to be found in the area of health and physical education. . . . Most modern educators believe that a child in any experience reacts as a whole. He is an integrated being; that is, his responses--physical, intellectual, emotional, and social--are all interrelated. These responses are experienced in some degree in every situation.

A child-development curriculum provides for many kinds of educational activities. It includes physical education experiences because those experiences are important to the child's complete development and because they can do some things for a child more effectively than can other phases of education. In some instances, experiences in physical education supplement those of other phases of the curriculum.<sup>29</sup>

Other educational factors affect the mental and emotional sides of the child's outlook. Broome says that,

. . . New ideas have been born. The school site has become more than a place for a building. The site has come to be an aid in the way of learning.

The richness that lies in nature should be worked with in a direct, first-hand way whenever possible. Nature should be a part of the program of education. Soil, rocks, valleys, swamps, hills, trees and streams are natural resources for children to explore, understand and work with. The dynamic forces of nature can best be seen by children when they have first hand contact with them.

The tendency for children to experiment with plant and animal life has become very pronounced in school programs. Cultivation of shrubbery and evergreens useful in landscaping is not unusual in vital programs of education.

Demonstrations of how birds may be attracted to a community through the use of the school site provides an activity through which children develop new insights. Another characteristic of a good site is a pleasing effect. A spot where one feels the least irritation and most harmonious influences adds a value that may be doing more than we realize in the development of a young child.<sup>30</sup>

A mother mocking bird could feel secure enough to bring her

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<sup>29</sup>Ibid., p. 10.

<sup>30</sup>Edwin W. Broome, "Characteristics of a Good School Site," American School and University, XIX (1947-48), 72-75.

fledgling young to a quiet corner of a school grounds, where there are shade trees, berried shrubs, and green grass, to teach them two of the most important lessons of their lives--where to find food and how to be ever alert for danger. Doubtless she would not bring them to a bare, dusty playground and thus deprive the children there of the opportunity to observe this natural teaching-learning process. Such an opportunity for children to share with their teacher this interesting natural occurrence might presage a great career in ornithology for one of the children. Caudill speaks of the value of outdoor classrooms as follows: "For example a reading lesson telling of the beauty of spring can be more effectively understood by the child when the class is in the shade of a tree rather than in a dark corner of the classroom."<sup>31</sup>

Englehardt, Englehardt and Leggett, well-known educational consultants, refer to the matter in their recent book as follows: "The building facilities and the out-of-door areas of a school should be considered as one comprehensive educational plant."<sup>32</sup> They also point out that educational growth is furthered in both the building and the outside areas and that physical education is not the only thing to be considered in the development of the site, although it should receive careful consideration. The development plan should also include the use of the grounds by the teachers and children in all other phases of the school program. Children need the chance to work in the soil and to observe the growth of trees and gardens. The ideas about growth and time and community service that come out of a tree-planting project, for example, are difficult to teach

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<sup>31</sup>William W. Caudill, "Space for Teaching," Texas Engineering Experiment Station Bulletin No. 9, Series 59 (August 1, 1941), 48.

<sup>32</sup>Englehardt, et al., Planning Elementary School Buildings. (New York: F. W. Dodge Corp., 1953), p. 124.

without participation, and certainly are an important part of children's lives. They suggest a number of areas which should be included in the site plan--landscaped areas, both paved and grassed play areas, outdoor classrooms, growing areas, nature study area, equipment space, park area, and parking facilities. Hamon put similar thoughts in an interesting manner when he stated,

Teachers in the past have thought too much about pedagogy and too little about boys and girls. Children bring their bodies when they come to school, therefore in planning an educational program it is essential to consider a child's legs and arms as well as his head. . . . Only lately has play been thought of as a fundamental principle of education.<sup>33</sup>

Mock and Mock say that, "Ideally the grounds are as carefully planned for the children's use and pleasure as the building itself."<sup>34</sup>

There appears to be agreement among those concerned that there is great need for adequate site planning of our elementary school grounds. Teachers, educational administrators, parents, educational specialists, architects, and landscape architects, separately and collectively, can contribute much toward the provision of an educational environment designed to meet the need.

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<sup>33</sup>R. L. Hamon, "Playgrounds," Interstate School Building Service Bulletin, George Peabody College, Nashville, Tennessee, 1939.

<sup>34</sup>Elizabeth B. Mock and Rudolf Mock, "Schools are for Children," American School and University, XV (1943), 37.

## CHAPTER II

### SITE PLANNING--YESTERDAY

Having indicated the need for the site design of elementary schools an investigation reveals that there is little reference to the site planning of these schools in early literature. Over a hundred years ago Henry Barnard's concept of school grounds was that the building should be surrounded by a yard of never less than half an acre which should be protected by a neat and substantial enclosure. The area behind the building should "be divided by a high and close fence, and one portion, appropriately fitted up, should be assigned exclusively for the use of the boys, and the other for the girls."<sup>1</sup>

In his Rural Essays of 1881 Andrew Jackson Downing in his chapter on schools referred to the fact that a traveler in the United States would notice,

. . . the general appearance of comfort in the houses of our rural population. But, by the wayside, here and there, he observes a small, one-story edifice, built of wood or stone in the most meagre mode, dingy in aspect, and dilapidated in condition. It is placed on the barest and most forbidding site in the whole country round."<sup>2</sup>

In his description of schools he goes on to point out the broken fences, absence of trees, and air of melancholy usually associated with them. Parents and educators should understand the importance of attractive surroundings to the young child's mind since, "It is precisely at that

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<sup>1</sup>N. L. Englehardt and N. L. Englehardt, Jr., Planning the Community School (New York: American Book Co., 1940), p. 121.

<sup>2</sup>Downing, op. cit., p. 265.

ago--in youth--when the heart is most sensitive, when the feelings are more keenly alive than at any other. . . ."<sup>3</sup>

Fifty years ago, according to Perkins and Cocking,<sup>4</sup> little thought was given to the site and how big it should be. Little value was attached to play as an educational function. Stars were studied from charts; plants from pictures; conversation from textbooks. The main objective seemed to be in finding a site that would properly show off the impressive monument which served as a school.

In 1911, in Louisiana, Brown wrote, "There is no bit of ground where beauty is more appropriate, where it will extend a wider and more constant blessing and where it is more easily obtained. . . . Let us resolve that next fall there shall not be a single barren school yard in . . . the state."<sup>5</sup> The large number of pictures of barren Louisiana school grounds shown bear out Brown's idea that something should be done, instead of just leaving the problem up to nature. It would seem that little was done if one can judge by what can be seen today. In Oklahoma, for example, the little country school which the author attended in the 1920's stands just as it did then, in the center of Round Grove community. One thing has been added to the scene in 35 years--an electric power pole (Plate VIII, Fig. 1).

Spain<sup>6</sup> et al., in 1930, referred to the overall scope of school

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<sup>3</sup>Ibid.

<sup>4</sup>Lawrence B. Perkins and Walter D. Cocking, Schools (New York: Reinhold Publishing Corp., 1949), p. 23.

<sup>5</sup>C. J. Brown, "Ornamentation of School Grounds in Louisiana," Louisiana State Department of Education publication, Baton Rouge; La. (1911), p. 1.

<sup>6</sup>Charles L. Spain, A. B. Meehlman, and F. W. Frostic, The Public Elementary School Plant (New York: Rand McNally & Co., 1930).

## PLATE VIII

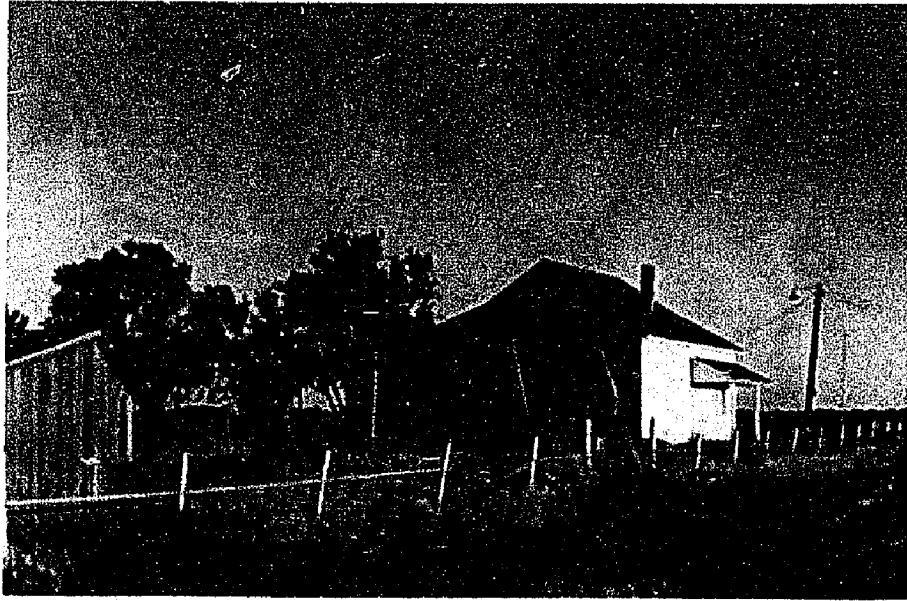


Figure 1. Round Grove Rural School, Kay County, Oklahoma

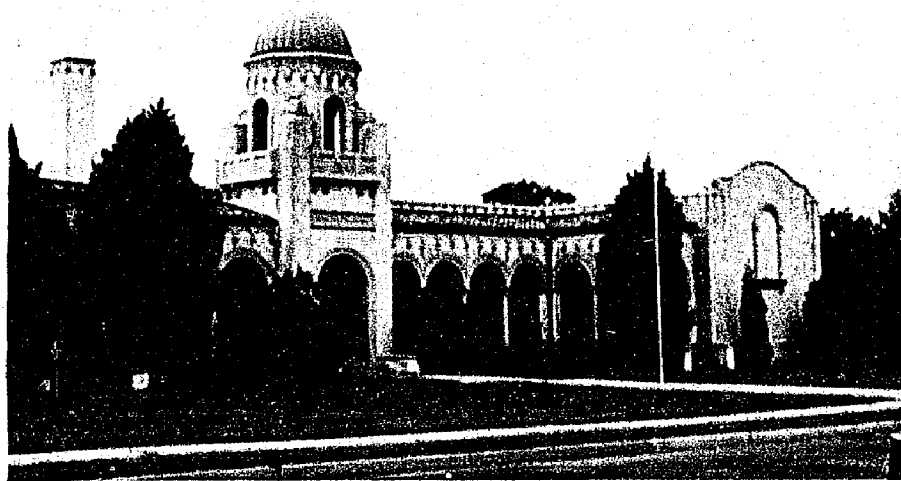


Figure 2. Whitfield School, Jackson, Mississippi



planning as educational designing, including the three major aspects, building, playground, and landscaping. According to Spain, the landscape treatment is of first importance and may be used to improve the best architecture or to soften architectural defects in old buildings. The lack of landscape planning is pointed out as follows: ". . . with the exception of a few progressive centers, the landscaping phase of school-plant development has been neglected completely."<sup>7</sup> Spain goes on to say that a few cities adopting good landscape policies at that time included Cincinnati, Rochester, St. Louis, Los Angeles, and Denver.

The authors devote considerable space to a discussion of "formal" and "informal" landscape design, which was thought in that day to be such an important consideration.

Type of architecture and form of site influence to a considerable extent the general landscape design. In cities where the terrain is not flat, there is a tendency toward the formal type of planting. St. Louis is typical of this group, and the planting methods employed do much to enhance the character of the buildings. The St. Louis schools, as a rule, are built somewhat above sidewalk level. They favor English, Dutch, and Nurnberger architectural designs that are most commonly seen in formal settings. . . . The Wyman School is set back from the sidewalk and separated from it by a low iron fence. The area between building and walk is formally terraced. Entrance walks are flanked by clipped hedges. Building and grass terraces are tied together by the use of shrubs close to the building, while the skillful planting of shade trees prevents monotony. The playground is located in the back of the building, carefully screened from the street by masonry walls, and is devoid of planting. . . .

The Point Fermin School is an example of a formal type of planting typical of California. Like the St. Louis buildings, this concrete structure is built somewhat above street level. In conformity to the general architectural style, it is surrounded by a terrace and solid balustrade. Below this the ground is terraced to sidewalk level. The formal grass terrace is backed by shrub and tree borders. The entire effect is in keeping with the Spanish type of architecture.<sup>8</sup>

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<sup>7</sup>Ibid., p. 370.

<sup>8</sup>Ibid., p. 385 & 388.

Less space is given to informal planting which gives a more intimate feeling to the school plant by simply using trees and grass and a few climbing plants. In summary, they say,

The landscaping of the American public school has been neglected seriously in the past. Planting should be considered as an integral part of the building development. In certain progressive centers this conception long since has passed from the field of theory to that of practice and, ultimately, their example will have a marked influence upon school-site development. Through the skillful use of planting it is possible to cover many glaring defects in architectural design. Existing buildings, initially ugly and unattractive, can be changed markedly through intelligent planting. Even the finest architectural conceptions can be improved immeasurably through proper landscaping. In the last analysis, landscaping furnishes the setting and background against which a building may show better its purpose and function.<sup>9</sup>

Landscape design has changed some since that time. Plate VIII, Figure 2 illustrates the type of architecture and landscaping of that period. The latter was often thought of then as external ornamentation plastered on after the building was completed rather than as an integral part of the whole environment.

In 1934, Pruett<sup>10</sup> reported on a national survey of school plant requirements for standardized schools. At that time only 35 of the 48 states had any printed standards covering elementary school plants--grounds, buildings and equipment. Walks were of some importance, as 23 out of 35 had set up standards for them. Drives were evidently not considered important as only one state reported standards for them. More than half of the states mentioned landscaping, but with little or no details.

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<sup>9</sup>Ibid., p. 395.

<sup>10</sup>Haskell Pruett, School Plant Requirements for Standardized Schools. (Nashville, Tennessee: George Peabody College for Teachers, 1934).

Jewitt<sup>11</sup> mentioned in 1936 that a new conception of play had been derived from studies of child psychology, pointing out that the character-building possibilities inherent in play were now recognized.

Hamon,<sup>12</sup> in a small bulletin issued in 1941, refers to the need of landscaping school grounds in order that they may furnish maximum educational recreational facilities.

A small portion of Lohman's work<sup>13</sup> is devoted to elementary schools, stressing acreage needs, building location, circulation, play space, fences, plantings, light, air, surfacing, and noise and dust barriers. He cites Denver, Colorado as a city which was doing something about site design in the 1930's. Average expenditures for site improvement for elementary schools were as follows:

|                  |               |
|------------------|---------------|
| Grading          | \$1100        |
| Drives and Walks | 800           |
| Surfacing        | 250           |
| Lawns            | 225           |
| Plantings        | 900           |
|                  | <u>\$3275</u> |

Few schools today, 25 years later, are doing as much with their school grounds.

The files of the official publication of the American Society of Landscape Architects, Landscape Architecture, do not refer to school design until 1921, where there is found in Volume XII a brief report devoted almost exclusively to the amount of space found around schools

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<sup>11</sup>Helen L. Jewitt, "Play Spaces for Small Children," American School and University, VIII (1936), 217.

<sup>12</sup>R. L. Hamon, "Suggestions for Landscaping Community Schools," Interstate School Building Service Bulletin, (Nashville, Tennessee: George Peabody College for Teachers, 1941).

<sup>13</sup>Karl B. Lohmann, Landscape Architecture in the Modern World, (Champaign, Illinois: The Garrard Press, 1941).

The author, Ramsdell,<sup>14</sup> used this as a basis for a recommendation that every state should have a law requiring adequate, free space about school buildings.

Judging from the preceding review of early literature, one might conclude that many of the elementary schools in the late nineteenth and early twentieth centuries were meagerly landscaped, if at all. To most people landscaping consisted entirely of efforts toward beautification and few conceived the idea of a total plan, integrating building, grounds, and curriculum into an educational entity. However, there were a few who approached this concept in their thinking, at least in part. Pesman was one of these. As a landscape architect for the Denver Public Schools he devoted considerable time to this problem and in 1928 wrote: "There is urgent need for a definite outline of the efficient layout of school grounds."<sup>15</sup> The chief reasons for landscape development were, "(1) to provide a proper setting for the building, (2) to make the school an attractive and pleasant place for the child to come to, and (3) /to obtain/ educational value in matters of art appreciation, citizenship, and plant study."<sup>16</sup> Such thinking served as a precursor for that which was to follow.

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<sup>14</sup>Chas. H. Ramsdell, "A Comparison of School Ground Plans," Landscape Architecture, XII (October, 1929), 46.

<sup>15</sup>M. W. Pesman, "Landscape Development of School Grounds," The American School Board Journal, LXXVI (February, 1928), 47.

<sup>16</sup>Ibid.

### CHAPTER III

#### SITE PLANNING--TODAY

In recent years the people who have been working with our nation's schools have been doing some serious thinking about improving the educational environment of elementary schools. This has been most noticeable in architectural design as pointed out earlier. Buildings have been designed for children and teachers. The walls, and even roofs, are opened up, so to speak, with glass and plastic so that the out-of-doors can be brought into the schoolroom. Along with this there has been increasing interest in the out-of-doors. Perkins and Cocking say,

. . . Today in many districts, education itself is moving out-of-doors. Physical education is no longer a series of exercises between fixed rows of desks--nor even indoor play alone. More and more of its program is taking advantage of the health-giving out-doors. Then, too, classes are actually looking at stars, watching birds, growing some plants and observing others in their wild state, learning conservation by practicing it. Standards for site size and character are not even determined by recreation needs in these systems nor by present and possible future building requirements. School and community planners are interpreting educational philosophy in terms of activities, activities in terms of space requirements.<sup>1</sup>

Since World War II there has been quite an increase in the literature on the subject of site planning for elementary schools, brought about, in part at least, by the greatly increased enrollments.

In 1953, a preliminary survey of some thirty publications indicated that some new concepts, or new values for old ones were apparent.

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<sup>1</sup>Perkins and Cocking, op. cit., p. 24.

A classification of those factors mentioned as contributing to the site design or landscape planning of elementary schools resulted in a compilation of twenty-seven items. A frequency check of these items was made and tabulated. The results are to be found in Table I.

Table I. Items Suggested for Inclusion in the Landscape Planning of School Grounds

| Suggestions                               | Percentage of References |
|---|--------------------------|
| Improvement and enrichment in appearance  | 52%                      |
| Recreation areas                          | 43                       |
| Facilities for nature study               | 40                       |
| Convenient circulation                    | 36                       |
| Growing plots                             | 36                       |
| Grading and drainage                      | 33                       |
| Ample parking areas                       | 33                       |
| Enclosures--fences, walls, etc.           | 33                       |
| Community use                             | 30                       |
| Outdoor classrooms                        | 26                       |
| Service area                              | 20                       |
| Blending site, buildings and surroundings | 20                       |
| Convenient loading zones                  | 20                       |
| Safety considerations                     | 20                       |
| Shade trees                               | 20                       |
| Minimum maintenance                       | 16                       |
| Adequate, safe playground equipment       | 16                       |
| A wooded, park-like area                  | 13                       |
| Dust, wind, and sound barriers            | 13                       |
| Integration of building and site          | 10                       |
| Outdoor theater                           | 10                       |
| Pet pens                                  | 10                       |
| Student participation in care of grounds  | 10                       |
| Water forms (pools, etc.)                 | 7                        |
| Growing plots (experimental)              | 7                        |
| Outdoor lighting                          | 7                        |
| A cave                                    | 3                        |

The item mentioned most often was the general improvement in the appearance of the school grounds through planning and planting to enrich the environment and provide a functional site plan. Sixteen of the thirty publications referred to this subject, giving it a rating of 52 percent. This was closely followed by recreation areas with 43 percent, convenient

circulation (walks and drives, etc.) with 36 percent, and facilities for growing plants which was also mentioned by 36 percent of the authors.

Only one publication<sup>2</sup> referred to the need of a cave on the school grounds, the authors expressing the opinion that a child's experiences are not complete without having a chance to explore a cave. Many rural, elementary schools in Oklahoma, for example, have caves but for another purpose-- protection against tornadoes--and they are referred to as "storm collars."

All of the items mentioned were seriously considered by people who are interested in a good educational environment. Grading and drainage were thought to be quite important, especially in areas of heavy rainfall. Our increasing dependence upon automobiles has brought about a parking problem, partly to accommodate school staff members and partly for after hours use. This latter function results from the increased use of school grounds for community recreation.

The school-park concept is receiving a great deal of attention at this time. In part, necessity mothered this invention, too. Phenomenal growth of some cities beyond the plans of city planning commissions has left them without enough space for both schools and parks. With proper administrative policy and the provision of supervisory personnel paid by the park and recreation commission schoolgrounds have filled the gap in many recreation programs with an economical use of space and equipment, all purchased from the same tax-paying pockets. "Such combination use with proper supervision will become reasonably widespread and become

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<sup>2</sup>Frank W. Cyr, Henry H. Linn, and others, Planning Rural Community School Buildings (New York: Bureau of Publication, Columbia University, 1949).

a year-round, twelve to fourteen hour a day service to the community."<sup>3</sup>

Enclosures of various types are needed to serve several purposes. They aid in the safety program, as Byrom<sup>4</sup> suggests, by keeping children from running into the street, for example after balls, and by separating use areas or age groups. Specialized types add to the visual appreciation, while others may detract from it. The contrast between a bare schoolground surrounded by a high wire fence and one with nice, green lawn areas behind an attractive border planting, effectively screening the fence behind it, is obvious. Only 26 percent of the publications listed outdoor classrooms as being important.

In order to determine trends in present-day thinking on these matters, a preliminary survey was conducted among those concerned with planning today's educational facilities. The items listed in Table I were randomized and headed with a brief statement of explanation asking each recipient to check the ten most important items in the list of 27 and to rate them in the order of their importance. Space was provided for additional items and comments. This form also served as a pilot model to determine whether or not the questionnaire should be reorganized to better serve its purpose.

A sample of opinion was drawn from representative teachers, school administrators, parents, architects, and landscape architects. The results are found in Table II.

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<sup>3</sup>Englehardt, Englehardt, and Leggett, op. cit., p. 129.

<sup>4</sup>Jack A. Byrom, Associate Professor of Education (Physical Education), Oklahoma A. & M. College, Stillwater, Oklahoma, personal interview.



Table II. A Preliminary Survey of the Importance of Site Design Factors

| Site Design Factors                                 | Percentage of Preference |
|---|--------------------------|
| <u>Teachers' Opinions</u>                           |                          |
| Safety considerations                               | 100%                     |
| Convenient loading zones                            | 100                      |
| Convenient circulation                              | 100                      |
| Adequate, safe playground equipment                 | 100                      |
| Improvement and enrichment in appearance            | 80                       |
| Minimum maintenance                                 | 80                       |
| Convenient service facilities                       | 80                       |
| Grading and drainage                                | 60                       |
| Community use of grounds                            | 60                       |
| Recreation areas                                    | 60                       |
| Outdoor lighting facilities                         | 40                       |
| Ample parking areas                                 | 40                       |
| Dust, wind, and sound barriers                      | 20                       |
| Enclosures--fences, walls, etc.                     | 20                       |
| Outdoor classroom areas                             | 20                       |
| Student participation in care of grounds            | 20                       |
| Outdoor theater                                     | 20                       |
| Good relationship between indoor and outdoor spaces | 20                       |
| Integration of building and site                    | 20                       |
| <u>Administrators' Opinions</u>                     |                          |
| Safety considerations                               | 93%                      |
| Convenient loading zones                            | 93                       |
| Grading and drainage                                | 93                       |
| Recreation areas                                    | 86                       |
| Improvement and enrichment in appearance            | 73                       |
| Community use                                       | 60                       |
| Convenient circulation                              | 60                       |
| Good relationship between indoor and outdoor spaces | 60                       |
| Adequate, safe playground equipment                 | 53                       |
| Facilities for nature study                         | 40                       |
| Growing plots                                       | 40                       |
| Shade trees   | 40                       |
| Ample parking areas                                 | 40                       |
| Convenient service facilities                       | 40                       |
| Integration of building and site                    | 40                       |
| Student participation in care of grounds            | 33                       |
| Minimum maintenance                                 | 33                       |
| Outdoor classroom areas                             | 26                       |
| Enclosures--fences, walls, etc.                     | 13                       |
| Dust, wind, and sound barriers                      | 6                        |
| Outdoor lighting facilities                         | 6                        |
| A cave  | 6                        |
| Outdoor theater                                     | 6                        |

Table II (Cont'd). A Preliminary Survey of the Importance of  
Site Design Factors

| Site Design Factors                                  | Percentage of<br>Preference |
|--|-----------------------------|
| <u>Parents' Opinions</u>                             |                             |
| Safety considerations                                | 86%                         |
| Convenient loading zones                             | 82                          |
| Improvement and enrichment in appearance             | 82                          |
| Minimum maintenance                                  | 69                          |
| Grading and drainage                                 | 65                          |
| Community use of grounds                             | 60                          |
| Shade trees  | 56                          |
| Dust, wind, and sound barriers                       | 43                          |
| Good relationships between indoor and outdoor spaces | 43                          |
| Integration of building and site                     | 43                          |
| Convenient service facilities                        | 41                          |
| Adequate, safe playground equipment                  | 39                          |
| Recreation areas                                     | 39                          |
| Convenient circulation                               | 34                          |
| Ample parking areas                                  | 34                          |
| Facilities for nature study                          | 30                          |
| Student participation in care of grounds             | 30                          |
| Outdoor classroom areas                              | 26                          |
| Outdoor lighting facilities                          | 21                          |
| Enclosures--fences, walls, etc.                      | 17                          |
| Outdoor theater                                      | 17                          |
| Growing plots  | 13                          |
| A cave   | 8                           |
| <u>Architects' Opinions</u>                          |                             |
| Outdoor classroom areas                              | 100%                        |
| Improvement and enrichment in appearance             | 75                          |
| Good relationships between indoor and outdoor spaces | 75                          |
| Integration of building and site                     | 75                          |
| Student participation in care of grounds             | 75                          |
| Facilities for nature study                          | 50                          |
| Grading and drainage                                 | 50                          |
| Dust, wind, and sound barriers                       | 50                          |
| Shade trees  | 50                          |
| Recreation areas                                     | 50                          |
| Convenient loading zones                             | 25                          |
| Growing plots  | 25                          |
| Community use  | 25                          |
| A wooded park-like area                              | 25                          |
| Safety considerations                                | 25                          |
| Outdoor theater                                      | 25                          |
| Minimum maintenance                                  | 25                          |

Table II (Cont'd). A Preliminary Survey of the Importance of Site Design Factors

| Site Design Factors                                 | Percentage of Preference |
|---|--------------------------|
| <u>Landscape Architects' Opinions</u>               |                          |
| Convenient circulation                              | 100%                     |
| Recreation areas                                    | 100                      |
| Grading and drainage                                | 83                       |
| Minimum maintenance                                 | 83                       |
| Community use                                       | 83                       |
| Improvement and enrichment in appearance            | 66                       |
| Adequate, safe playground equipment                 | 66                       |
| Integration of building and site                    | 66                       |
| Enclosures--fences, walls, etc.                     | 50                       |
| Safety considerations                               | 50                       |
| Good relationship between indoor and outdoor spaces | 50                       |
| Convenient service facilities                       | 50                       |
| Dust, wind, and sound barriers                      | 16                       |
| Convenient loading zones                            | 16                       |
| Growing plots                                       | 16                       |
| Shade trees   | 16                       |
| Ample parking areas                                 | 16                       |

Landscape architects emphasized convenient circulation and recreation areas; architects, outdoor classrooms; administrators, grading and drainage, convenient loading zones, and safety; teachers, convenient loading zones, convenient circulation, and safety; while parents favored safety above all, followed in second place by improvement and enrichment in the appearance of the grounds (tied with convenient loading zones).

The form also served its other purpose, in that comments of the correspondents suggested several ways in which the form could be improved. A number of their suggestions are listed below:

"Quite a few of the above list could be consolidated--to about twenty different points . . . /add/ planning for easy supervision . . . /rating/ order very nebulous."<sup>5</sup>

<sup>5</sup>Paul Tritenbach, Landscape Architect, Park and Recreation Department, Stockton, California.

"Divide the items into several use categories in order to facilitate selection within the class."<sup>6</sup>

"Several of these subjects are somewhat similar in importance and demand."<sup>7</sup>

"Unable to tabulate them according to the exact order of importance. Items of a similar classification should be considered as an integrated conception."<sup>8</sup>

"It seems to me that the items are of three types--activities, utilitarian considerations, and functional requirements . . . the different types are independently important."<sup>9</sup>

"I felt that somehow the items were not weighted in equal categories . . . from your list I got four categories of considerations: one, functional; two, educational; three, community relations; and four, appearance."<sup>10</sup>

A school superintendent from New York--"Some of the above items would automatically find consideration under other, more general, items."

A principal from Oklahoma--"Some of these items may be of equal value."

"These problems are hardly mutually exclusive, i.e. to answer one often implies several others which are so closely interdependent that

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<sup>6</sup>L. H. Burton, Extension Horticulturist, University of Arkansas.

<sup>7</sup>L. R. Quinlan, Professor of Landscape Design, Kansas State College.

<sup>8</sup>Joseph S. Elfner, Assistant Professor of Landscape Architecture, University of Wisconsin.

<sup>9</sup>J. Lee Brown, Regional Planning Director, Springfield, Ohio.

<sup>10</sup>Hideo Sasaki, Professor of Landscape Architecture, Harvard University, Cambridge, Massachusetts.

to do one requires doing two or three others."<sup>11</sup>

The pilot form was reorganized in the light of the results and comments obtained. Invaluable analytical assistance by several well-qualified landscape architects, a sociologist, and a statistician, all experienced in survey work, contributed much to the final form. The list was reorganized by grouping items of very similar type into one entry, and items of a kind into a class by themselves. This resulted in four classifications, each having five items, to balance the form. A blank line was placed at the bottom of each classification for the entry of additional items if anyone should believe this necessary. Such essential items as safety, minimum maintenance, and planning for future development were mentioned in the introductory paragraph as being so basically requisite that they should be included in all plans.

Recipients were not asked to rank their choices but simply to select the three factors considered the most important in each classification.

The sample drawn for this study was a selected one. Parents, teachers, school administrators, school board members, superintendents, principals, architects, and landscape architects were contacted through personal interviews, group meetings, or by mail. The basis of selection was the recognized competence in his field of the person contacted and his relation to the topic under discussion. For example, the architects polled were chiefly those who have won recognition in the field of contemporary, elementary school design as winners of awards, honorable mentions, and special feature citations in the National Competition for Better

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<sup>11</sup>C. D. Duncan, Department of Rural Sociology, Oklahoma A. & M. College.

School Design (Page 5) which began in 1951. With few exceptions, all who participated in the survey were connected with these award-winning schools, representing some of the best contemporary school architecture in the nation--superintendents, principals, board members, teachers, and parents of pupils. An exception is the landscape architecture group.

The grounds of some of these schools have been site planned; for example, the John Muir Elementary School in Martinez, California, landscaped by Eckbo, Royston, and Williams, but because of the lack of planned grounds only relatively few landscape architects who have worked on these schools are available. They have been supplemented with landscape architects serving on the faculties of those colleges and universities of the nation where this type of work is taught, as well as professional landscape architects considered by many to be the outstanding men in their field in this country today.

Specialists in the field of Education such as: Dr. Ray L. Hamon, Chief of the Division of School House Planning, Office of Education, U. S. Department of Health, Education and Welfare, Washington D. C.; J. L. Taylor, Specialist for planning School Buildings, and Simon A. McNeely, Specialist in Physical Education, also of the Office of Education; Carl W. Seagers, Educational Consultant of the University of Indiana; N. L. Englehardt, Sr., of Englehardt, Englehardt, and Leggett, Educational Consultants of New York City are among those contacted.

Robert Royston and Edward Williams of Eckbo, Royston and Williams, Landscape Architects of San Francisco; S. Herbert Hare, of Hare & Hare, in Kansas City; Thomas Church and Lawrence Halprin of San Francisco, and other prominent landscape architects, along with Professor H. Leland Vaughan, Chairman of the Department of Landscape Architecture of the University of California; H. B. Owens, Head of the Department of Landscape

Architecture at the University of Georgia; D. N. Glick, Chairman of Landscape Studies, Department of Landscape Architecture at Michigan State University; John R. Bracken, Head of Department of Landscape Horticulture at Penn State; Hideo Sasaki of the Harvard School of Design, and many others were selected as representative of the field of landscape architecture.

Architects chosen from winners of the National Competition for Better School Design include: Caudill, Rowlett, Scott and Associates of Bryan, Texas and Oklahoma City, who won a top award in 1951 for Westwood Elementary School in Stillwater, Oklahoma (Plate IX) and again in 1953 for Sam Houston Elementary School in Port Arthur, Texas (Plate XIII, Fig. 2). John C. Warneke of San Francisco won a top award for Mira Vista Elementary School in El Cerrito, California in 1951 and top award again in 1953. Perkins and Will of Chicago won honorable mention and special feature mention in 1951, a top award in 1953 and an honorable mention for Woodlawn Elementary School of Schenectady, New York. John Lyon Reid of San Francisco won a special feature mention in 1951, and was a top award winner in 1953 for two elementary schools at Fairfax, California.

All of these men and many others were contacted because of the excellent work which they had done in the field of school design and the close relationship between the subject matter of the fields of architecture and landscape architecture in dealing with organized space.

Teachers, principals, and superintendents of schools placing high in this national competition were selected because of their contact with the best of contemporary elementary school design.

The results of this survey are to be found in Table III where the preference of the indicated site design factors is shown according to occupational classification and arranged in order of preference.

## PLATE IX

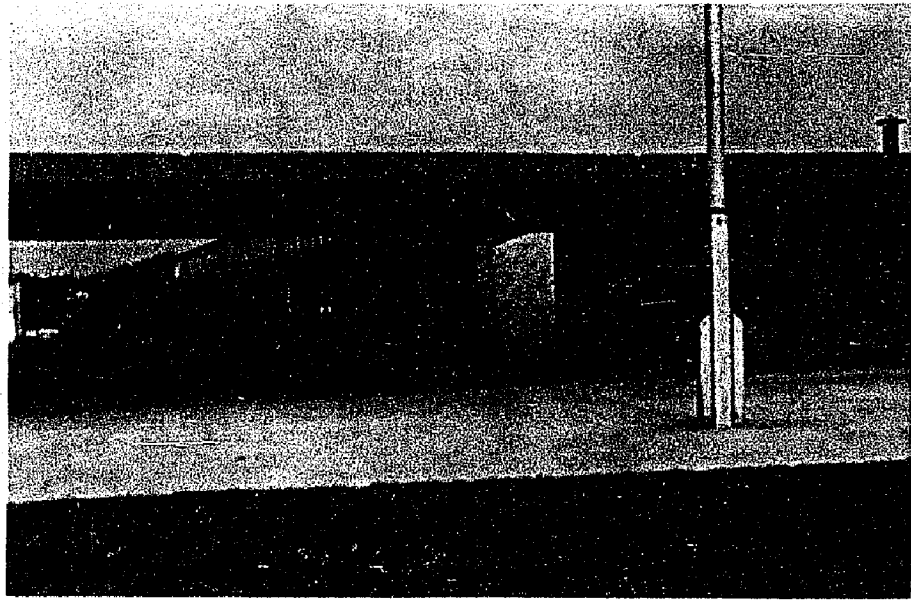


Figure 1. Westwood School, Stillwater, Oklahoma  
Caudill, Rowlett, Scott, & Associates

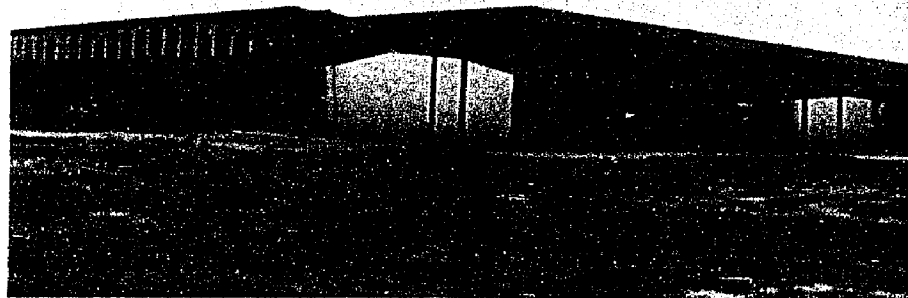


Figure 2. Westwood School, Stillwater, Oklahoma  
Caudill, Rowlett, Scott, & Associates



Table III. A Survey of the Importance of Site Design Factors

| Site Design Factors                             | Percentage of Preference |
|---|--------------------------|
| <u>Teachers' Opinions</u>                       |                          |
| EDUCATIONAL                                     |                          |
| Areas for group play                            | 88%                      |
| Outdoor teaching areas                          | 53                       |
| Nature study areas                              | 52                       |
| Areas for individual play                       | 47                       |
| Cultivated growing plots                        | 41                       |
| FUNCTIONAL                                      |                          |
| Convenient circulation                          | 67%                      |
| Grading for proper drainage and usability       | 64                       |
| Ease of supervision                             | 55                       |
| Surface stabilization (turf, etc.)              | 47                       |
| Climate controls (sun, wind, etc. barriers)     | 47                       |
| VISUAL  |                          |
| Enrichment of landscape                         | 60%                      |
| Organizing outdoor spaces with enclosures       | 57                       |
| Integration of buildings and site               | 55                       |
| Surfacing (lawn, ground cover, concrete)        | 52                       |
| Good relationships between indoors and outdoors | 52                       |
| COMMUNITY USE                                   |                          |
| Playgrounds                                     | 84%                      |
| Outdoor teaching areas for group meetings       | 64                       |
| Service facilities (rest rooms, equipment)      | 58                       |
| Nature study areas                              | 32                       |
| Outdoor theater                                 | 29                       |

|   |    |
|---|----|
| <u>Administrators' Opinions</u>                 |    |
| EDUCATIONAL                                     |    |
| Areas for group play                            | 88 |
| Areas for individual play                       | 55 |
| Cultivated growing plots                        | 42 |
| Outdoor teaching areas                          | 36 |
| Nature study areas                              | 33 |
| FUNCTIONAL                                      |    |
| Convenient circulation                          | 66 |
| Grading for proper drainage and usability       | 86 |
| Ease of supervision                             | 53 |
| Surface stabilization (turf, etc.)              | 44 |
| Climate controls (sun, wind, etc. barriers)     | 19 |
| VISUAL  |    |
| Good relationships between indoors and outdoors | 63 |
| Integration of buildings and site               | 61 |
| Enrichment of landscape                         | 59 |
| Surfacing (lawn, ground cover, concrete)        | 55 |
| Organizing outdoor spaces with enclosures       | 19 |

Table III (Cont'd). A Survey of the Importance of Site Design Factors

| Site Design Factors                              | Percentage of Preference |
|--|--------------------------|
| <u>Administrators' Opinions (Cont'd)</u>         |                          |
| COMMUNITY USE                                    |                          |
| Playgrounds                                      | 75%                      |
| Service facilities (rest rooms, equipment)       | 55                       |
| Outdoor teaching areas for group meetings        | 42                       |
| Nature study areas                               | 30                       |
| Outdoor theater                                  | 8                        |
| <u>Parents' Opinions</u>                         |                          |
| EDUCATIONAL                                      |                          |
| Areas for individual play                        | 39%                      |
| Areas for group play                             | 39                       |
| Nature study areas                               | 30                       |
| Outdoor teaching areas                           | 26                       |
| Cultivated growing plots                         | 13                       |
| FUNCTIONAL                                       |                          |
| Convenient circulation                           | 83%                      |
| Grading for proper drainage and usability        | 65                       |
| Climate controls (sun, wind, etc. barriers)      | 43                       |
| Surface stabilization (turf, etc.)               | 18                       |
| Ease of supervision                              | 18                       |
| VISUAL   |                          |
| Enrichment of landscape (colors, textures, etc.) | 83%                      |
| Integration of buildings and site                | 43                       |
| Good relationships between indoors and outdoors  | 43                       |
| Organizing outdoor spaces with enclosures        | 18                       |
| Surfacing (lawn, ground cover, concrete)         | 18                       |
| COMMUNITY USE                                    |                          |
| Playgrounds                                      | 61%                      |
| Outdoor teaching areas for group meetings        | 61                       |
| Nature study areas                               | 61                       |
| Service facilities (rest rooms, equipment)       | 48                       |
| Outdoor theater                                  | 18                       |
| <u>Architects' Opinions</u>                      |                          |
| EDUCATIONAL                                      |                          |
| Areas for group play                             | 76%                      |
| Outdoor teaching areas                           | 56                       |
| Cultivated growing plots                         | 52                       |
| Areas for individual play                        | 48                       |
| Nature study areas                               | 40                       |
| FUNCTIONAL                                       |                          |
| Grading for proper drainage and usability        | 76%                      |
| Convenient circulation                           | 68                       |
| Climate controls (sun, wind, etc. barriers)      | 40                       |
| Surface stabilization (turf, etc.)               | 40                       |
| Ease of supervision                              | 32                       |

Table III (Cont'd). A Survey of the Importance of Site Design Factors

| Site Design Factors                                  | Percentage of Preference |
|--|--------------------------|
| <u>Architects' Opinions (Cont'd)</u>                 |                          |
| VISUAL   |                          |
| Good relationships between indoors and outdoors      | 84%                      |
| Integration of buildings and site                    | 84                       |
| Surfacing (lawn, ground cover, concrete)             | 44                       |
| Enrichment of landscape (colors, textures, etc.)     | 28                       |
| Organizing outdoor space with enclosures             | 24                       |
| COMMUNITY USE  |                          |
| Playgrounds  | 76%                      |
| Service facilities (rest rooms, equipment)           | 52                       |
| Outdoor teaching areas for group meetings            | 32                       |
| Nature study areas                                   | 28                       |
| Outdoor theater                                      | 20                       |
| <u>Landscape Architects' Opinions</u>                |                          |
| EDUCATIONAL  |                          |
| Areas for group play                                 | 86%                      |
| Outdoor teaching areas                               | 57                       |
| Nature study areas                                   | 54                       |
| Areas for individual play                            | 51                       |
| Cultivated growing plots                             | 20                       |
| FUNCTIONAL   |                          |
| Convenient circulation                               | 89%                      |
| Grading for proper drainage and usability            | 86                       |
| Ease of supervision                                  | 40                       |
| Surface stabilization (turf, etc.)                   | 37                       |
| Climate controls (sun, wind, etc. barriers)          | 34                       |
| VISUAL   |                          |
| Integration of buildings and site                    | 83%                      |
| Enrichment of the landscape (colors, textures, etc.) | 51                       |
| Organizing outdoor spaces with enclosures            | 49                       |
| Good relationships between indoors and outdoors      | 49                       |
| Surfacing (lawn, ground cover, concrete)             | 46                       |
| COMMUNITY USE  |                          |
| Playgrounds  | 83%                      |
| Service facilities (rest rooms, equipment)           | 74                       |
| Outdoor teaching areas for group meetings            | 69                       |
| Nature study areas                                   | 34                       |
| Outdoor theater                                      | 9                        |

Teachers, charged with the direct responsibility in most cases for the physical education program of their pupils and realizing the sociological value of organized play, have rated areas for group play as their first consideration under both educational and community use classifications. Convenient circulation, which rated high in the preliminary survey is first under functional; and enrichment of the landscape is first under visual. The relative weight of the four groups is rather close with educational slightly ahead of the others.

Administrators (principals, etc.) also gave top place to areas for group play, under educational, and to convenient circulation, under functional; but in the visual classification they favored the attainment of good relationships between indoor and outdoor spaces. By groups, they gave the greatest weight to the functional items.

The parents contacted gave major emphasis to community use of the school grounds, while architects gave equal weight to visual and educational factors. Landscape Architects favored the functional factors but only slightly over the other groups of items.

The ratings have been brought together in Table IV and the consolidation indicates that of the 177 selected specialists responding, the majority favored the single functional site design factor of convenient circulation as the most important and rated the inclusion of an outdoor theater in the community use section as the least desirable factor to consider in determining their relative merit.

The four areas of consideration--educational, functional, visual, and community use--received approximately the same amount of attention in the survey, although some participants did not follow instructions to check three factors in each classification, thus showing a slight preference as a result of certain overages and shortages. Functional factors

Table IV. A Comparison of Opinions of Certain Groups of Individuals Concerning the Importance of Site Design Factors

| Site Design Factors                             | Percentage of Preference |                     |         |                 |                         | Average |
|---|--------------------------|---------------------|---------|-----------------|-------------------------|---------|
|   | Teachers                 | Adminis-<br>trators | Parents | Archi-<br>tects | Landscape<br>Architects |         |
| EDUCATIONAL                                     |                          |                     |         |                 |                         |         |
| Areas for group play                            | 88%                      | 88%                 | 39%     | 76%             | 86%                     | 75%     |
| Areas for individual play                       | 47                       | 55                  | 39      | 48              | 51                      | 48      |
| Outdoor teaching areas                          | 53                       | 36                  | 26      | 56              | 57                      | 46      |
| Nature study areas                              | 52                       | 33                  | 30      | 40              | 54                      | 42      |
| Cultivated growing plots                        | 41                       | 42                  | 13      | 52              | 20                      | 34      |
| FUNCTIONAL                                      |                          |                     |         |                 |                         |         |
| Convenient circulation                          | 57%                      | 86%                 | 83%     | 68%             | 89%                     | 79%     |
| Grading for proper drainage & usability         | 64                       | 86                  | 65      | 76              | 86                      | 75      |
| Ease of supervision                             | 55                       | 53                  | 18      | 32              | 40                      | 40      |
| Climate controls (sun, wind, etc. barriers)     | 47                       | 19                  | 43      | 40              | 34                      | 37      |
| Surface stabilization (turf, etc.)              | 47                       | 44                  | 18      | 40              | 37                      | 37      |
| VISUAL  |                          |                     |         |                 |                         |         |
| Integration of buildings and site               | 55%                      | 61%                 | 43%     | 84%             | 83%                     | 65%     |
| Good relationships between indoors and outdoors | 52                       | 63                  | 43      | 84              | 49                      | 58      |
| Enrichment of landscape                         | 60                       | 59                  | 83      | 28              | 51                      | 56      |
| Surfacing (lawn, ground cover, concrete)        | 52                       | 55                  | 18      | 44              | 46                      | 43      |
| Organizing outdoor spaces with enclosures       | 57                       | 19                  | 18      | 24              | 49                      | 33      |
| COMMUNITY USE                                   |                          |                     |         |                 |                         |         |
| Playgrounds                                     | 84%                      | 75%                 | 61%     | 76%             | 83%                     | 76%     |
| Service facilities (rest rooms, equipment)      | 58                       | 55                  | 48      | 52              | 74                      | 57      |
| Outdoor teaching areas for group meetings       | 64                       | 42                  | 61      | 32              | 69                      | 54      |
| Nature study areas                              | 32                       | 30                  | 61      | 28              | 34                      | 37      |
| Outdoor theater                                 | 29                       | 8                   | 18      | 20              | 9                       | 17      |

received the most attention by a spread of only six percentage points.

An approach to the determination of the relative value of the various factors of elementary school site design can be had through a study of this survey, combined with information gathered from the most recent publications and personal interviews with selected personnel interested in one or more of the several related phases of this program. For clarity, the material will be presented in the same order as it appears in Table IV.

#### Educational Site Design Factors

The new space-use concept of planning the elementary school buildings and grounds as an integrated, educational activity is particularly appropriate in relation to our contemporary school buildings designed as they are to take advantage of the important affinity between educational spaces, whether indoors or out.

Group play. According to McClurkin, important trends in planning space and facilities for recreation and directed play activity include, ". . . the increasing attention being given to the health and physical well-being of the school child," and the increase in the interest of school personnel, boards of education and parents in more adequate space for directed play and recreation.<sup>12</sup> This has been brought about through a better understanding of children's needs. Jennings states that, "The young child learns more and develops better through play than through any other form of activity. Opportunity for varied play under healthful

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<sup>12</sup>R. T. DeWitt, editor, "Playgrounds," Interstate School Building Service publication, Nashville, Tennessee: George Peabody College for Teachers, 1950. forward.

outward conditions is beyond doubt the chief need of children."<sup>13</sup> The emphasis given group play under educational facilities in the survey bears out this approach. It was placed far above the next closest factor, individual play. It would seem, therefore, that areas for group play should receive a fairly large allotment of site space when schoolgrounds are planned.

McFadzean<sup>14</sup> refers to the elementary school's need for a large, twofold area for softball and other team games as the first item of consideration under facilities needed. The examples of his site plans shown have had most of the grounds devoted to this use.

Englehardt, et al. state that, ". . . the school site should be developed and planned extensively so that there may be an improved physical education program."<sup>15</sup> McNeely,<sup>16</sup> in discussing the psychology of young school children refers to eight and nine year old boys and girls as being interested in planned and organized physical education programs as well as spontaneous activities. Many of the ten and eleven year olds, ". . . like team games, especially those that involve vigorous activity. . . . They can understand and follow fairly complicated rules. They begin to understand what team play and team work mean and they enjoy team action."<sup>17</sup>

Sehon points out that until recently physical education activities

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<sup>13</sup>Herbert S. Jennings, "Planning Your Playground," J. E. Burke Playground Equipment Co. pamphlet. Fond du Lac, Wisconsin, (1954), p. 1.

<sup>14</sup>John McFadzean, "Site Planning," Reprinted from the Nation's Schools, (July, 1949).

<sup>15</sup>Englehardt, Englehardt, & Leggett, op. cit., p. 124.

<sup>16</sup>McNeely and Schneider, op. cit., p. 4-5.

<sup>17</sup>Ibid.

in the elementary schools were left as free play periods supervised by classroom teachers. Now greater emphasis is being placed upon professional teaching of physical education in the elementary schools as well as the more advanced age groups.<sup>18</sup>

An interesting comment from a parent reads, "Adequate play area is important. Proper supervision of outdoor activities and opportunity for participation in group games are more important than elaborate equipment and landscaping."

McNeely, in a personal interview, emphasized that area for recreational activity should receive major emphasis and that organized games space, such as softball, should be first in that category (Plate X, Fig. 1).

One of the greatest problems is the lack of space. This may be the result of an indifferent public failing to provide funds sufficient to obtain more than a space for the building foundation or a short-sighted school development plan that is not geared to the times. In any event, space is often inadequate. McNeely points out that,

Ironically, one of the most basic of children's needs--space to play in--is lacking in many elementary schools. A standard of about 10 acres is generally recommended as a minimum for a park-school. Where the park-idea is not feasible, the elementary school site should occupy space equal to a base of five acres plus an additional acre for each 100 pupils. Thus, a school of 400 pupils should have a 9-acre area. Much of this should be in the form of unobstructed play area, turfed if possible, and free of holes, debris, and other hazards to safety. Some of the area should be hard-surfaced.<sup>19</sup>

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<sup>18</sup>Elizabeth L. Schon et al., Physical Education Methods for Elementary Schools, second edition (Philadelphia: W. B. Saunders Co., 1953).

<sup>19</sup>McNeely and Schneider, op. cit. p. 47.



## PLATE X



Figure 1. Softball Practico--Jackson, Mississippi



Figure 2. Horizontal bar, balance beam, traveling rings and basketball goals. Westwood School, Stillwater, Okla.

Individual Play. The younger children (5 and 6 year-olds), according to McNeely, prefer to engage in individual play.

They like to play alone and in small groups. Playing together puts a strain on their social abilities, though, and group play is usually of short duration. These boys and girls like to run, jump, swing, fall down, get up, throw, catch, dance, hop, and skip. They find it almost impossible to sit or stand still very long. The desire for constant motion must be reckoned with no matter where they are.

Even when they are 6½ and 7 years old, boys and girls continue to be individualistic, but they are able to play together for longer periods. They argue, shove and push, and have frequent emotional explosions. Like most of us, they find rules that interfere with their freedom annoying. In groups or as individuals they cannot stay at one thing very long. That is part of growing up. So is the noise they make! . . . . .

Five, six, and seven-year-olds will try almost anything. Because they haven't learned how to follow good safety practices, they need careful supervision on the playground. . . . .

They want to learn to throw, catch, bat, and bounce balls. Since their hand-eye coordination isn't always good, they have a little difficulty. They aren't sure what their arms, legs, and trunks should do in the process of catching or getting rid of a ball. . . .

These fun-loving children, who so hopefully expect to acquire a variety of knowledge and skills, present a great challenge to the teachers who are privileged to work with them!<sup>20</sup>

He suggests that equipment for the play activity be of a kind that enables children to use their muscles rather than just ride on swings and see-saws. Playground equipment in order of priority for the primary grades includes jungle gym, horizontal bars, horizontal ladder, parallel bars, sandbox, balance beam, (Plate X, Fig. 2) and trapeze or rings.<sup>21</sup>

Individual play rated second on the survey but it is interesting

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<sup>20</sup>Ibid., p. 1-3.

<sup>21</sup>Ibid., p. 53.

to note that far more comments were made about it than about group play. One Oklahoma teacher wrote, "There is a great need for more playground space for free play." A New Mexico teacher said, "No curriculum is complete without great consideration /given/ to /this/ out-door activity. /It is/ extremely important."

Sorenson<sup>22</sup> considers play apparatus important for the individual play areas but points out that it should be of a type that is of value educationally as well as physically. Moving types of play equipment (Plate XI, Fig. 1) are a poor expenditure of money. Parallel bars, jungle gyms, and similar equipment is best and much safer, according to him.

An interesting new kind of individual play apparatus has recently been introduced to American playgrounds--play sculpture. The Swedes were among the first to make use of such interesting new forms. In the United States, however, it was the Oakland, California Park Department which introduced some play equipment designed to give the children a chance to use their imagination in play, in September, 1950, when they opened Children's Fairyland described as a colorful "Land of Makebelieve." The shoe house of the "Old Woman who Lived in a Shoe" serves as the entrance and children walk under the instep into Fairyland. There they see Noah's Ark, and Willie the Whale, into whose open mouth they can venture, or they can climb over "Ching-Lung-the Happy Chinese Dragon." Over a million children have done so since the opening date and according to a special Fairyland edition of the Oakland Tribune for September 2, 1954 it is now Oakland's Number One Tourist Attraction.

Parent's Magazine, The Museum of Modern Art, and Creative Playthings, Inc. sponsored a play sculpture contest in 1953-54 to encourage

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<sup>22</sup>H. E. Sorenson, personal interview.

## PLATE XI

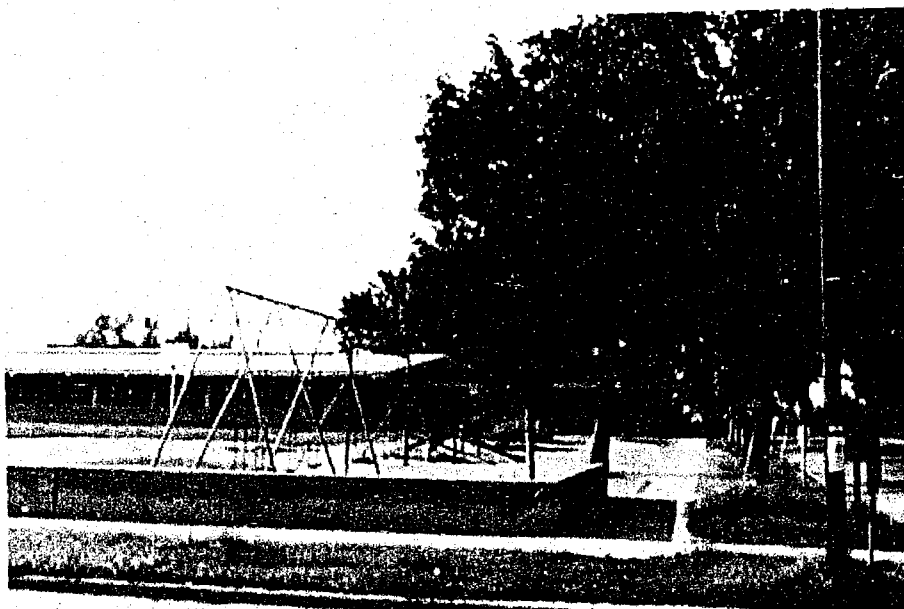


Figure 1. Movable play equipment, Miami, Oklahoma

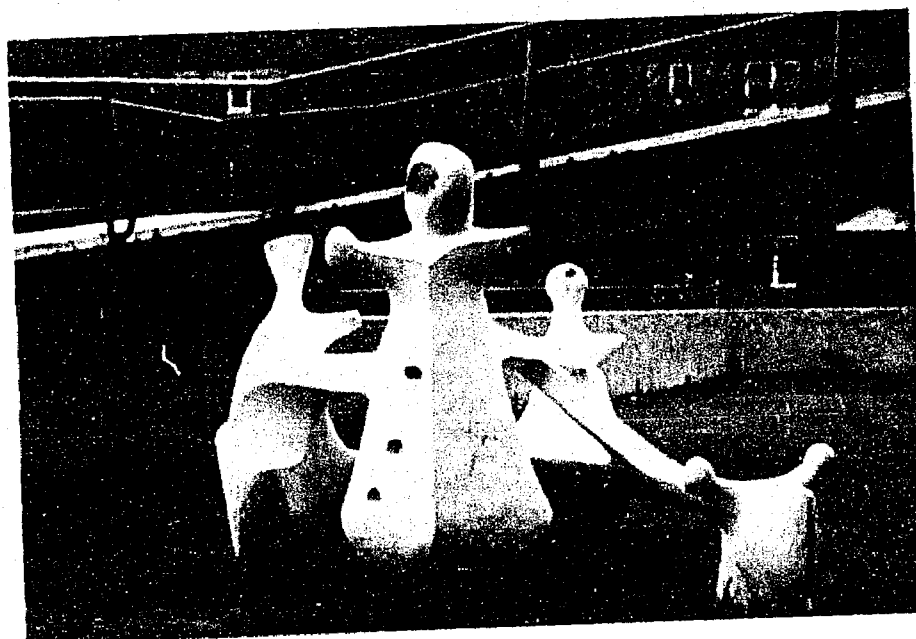


Figure 2. Play sculpture, Lafon School, New Orleans

the design and production of play equipment which would allow children to exercise their imaginations as well as their bodies.

Egon Moller-Nielsen of Sweden successfully initiated and experimented with play sculpture. Play sculpture took the form of concrete play mountains, domes and spirals, with caves, slides and climbing apparatus. By their color, shape and form they not only proved interesting to the children but added to the aesthetic beauty of the surrounding environment. Abstract in form and shape, they did not superimpose adult concepts of play but offered the complete freedom and spontaneity which is the basis of any play program.<sup>23</sup>

Examples of this interesting type of contemporary play equipment can be seen on Philadelphia playgrounds<sup>24</sup>. One of the favorites with the smaller children there is a huge concrete turtle. They climb over it, "ride" on its back or slide down its shell and hide underneath it. An interesting play sculpture group in the South is located at Lafon School in New Orleans (Plate XI, Fig. 2).

Sourdry<sup>25</sup> mentions that people creating new sculptures should not hesitate to try new materials--fiberglass reinforced polyester resins, lucite, polyvinyls, celastic, etc. In commenting on the use of play sculpture he says that children playing on one of these pieces have a group consciousness, a sense of belonging, and yet a freedom of choice. Thus they serve as a transition from individual play to group play later on in the child's growing experience.

Outdoor teaching areas. These areas have lately been given more prominence than previously in connection with contemporary school design. In the survey this item ranked below the two play areas. An Oklahoma

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<sup>23</sup>Frank Caplan, "Play Sculpture," The School Executive LXXIII, (August, 1954), pp. 48-49.

<sup>24</sup>Life Magazine, (September 13, 1954), pp. 118,120.

<sup>25</sup>A. M. Sourdry, "Designing and Building Play Sculptures," California Association of Landscape Architects' Report (February 4, 1955), p. 5.

teacher wrote, "There is a great need for . . . outdoor teaching areas." Reid<sup>26</sup> refers to the Lakeside School of Lakeside, California as an example of a school with an outdoor classroom of equal area adjacent to each classroom. Fencing and hedging provide enclosure and privacy. A small tree in each area provides shade. Another school to which he refers is the San Carlos Elementary School of San Carlos, California which in addition to the items mentioned in the previous school has a small sandbox, tiny growing plot and a bench in each area. Englehardt et al.<sup>27</sup> refer to the need for a hard-surfaced outdoor classroom to serve for moderately quiet activities and which is not to be used primarily as a noisy outdoor play area. Art work and other phases of the curriculum can take place here. A very large percentage of the activities usually carried on in the classroom can also be effectively pursued out-of-doors. The space needs some hard surfacing, protection from winds, ample sunlight or shade depending on climate, and sound baffles.

McFadzean<sup>28</sup> refers to the desirability of an amphitheater or council ring area in an attractive setting as a type of out-door classroom. Otto<sup>29</sup> states that outdoor teaching areas are not practical in the North, whereas, Seagers<sup>30</sup> points out that such areas are a good educational facility and that with proper planning and orientation to form a sun trap they can

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<sup>26</sup>Kenneth Reid, compiler. School Planning (New York: F. W. Dodge Corp., 1951), p. 141, 154.

<sup>27</sup>Englehardt, et al., op. cit., p. 127.

<sup>28</sup>McFadzean, "Site Planning."

<sup>29</sup>Raymond H. Otto, Head, Department of Landscape Architecture, University of Massachusetts, 1955, personal correspondence.

<sup>30</sup>Paul W. Seagers, Educational Consultant, University of Indiana, Lafayette, Indiana, personal interview.

be used in the North, too. He mentions their use in European countries, notably Switzerland, under conditions many Americans would say were too rigorous.

Nature study areas. These ranked fourth among the educational items. A parent commented that "a child can learn a great deal from outdoor play and nature study. It is a very important part of his growth." Broome<sup>31</sup> speaks of working with nature whenever possible and says that it should be a part of education. The dynamic forces of nature can be seen best by children who have first hand contact with them. Children need to explore and understand soil, rocks, valleys, swamps, hills, trees and streams. Ashley<sup>32</sup> in referring to a Connecticut school-park site says that it is a beautiful, heavily wooded slope of 25 acres. The woods will be preserved as a sanctuary for birds and small animals and will be used for nature study. "What better environment for learning than the true expression of one of childhood's greatest interests--that of growing things"?

Two landscape architects refer to the plant materials that go into the general design as a laboratory for nature study without setting aside any designated area as such. Bracken says, ". . . too small an area and too unnatural an area for real nature study, except that every tree, shrub, etc. is grist for the mill in having youngsters observe and appreciate nature."<sup>33</sup> Madison states, "I dislike the term nature study

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<sup>31</sup>Broome, op. cit., p. 72.

<sup>32</sup>Warren H. Ashley, et al., "Schools by the Same Design Team," Quotation by Englehardt, Architectural Record, CLX (Nov., 1954), 183.

<sup>33</sup>John R. Bracken, Professor of Landscape Horticulture, Penn State College, personal correspondence.

areas. It implies that familiarity with nature shall be relegated to a certain time and place. I should rather see the area developed with the goal of making a section of nature part of the familiar environment . . ."<sup>34</sup> Englehardt et al. refer on the other hand to "a section, or sections, of the site which can be developed for this function."<sup>35</sup> Marshall cites how the "Use of native trees and shrubs can make the school grounds a science center, useful for teaching nature study, botany, and conservation."<sup>36</sup> Vinal calls attention to the fact that ". . . it becomes increasingly difficult for succeeding generations of school children to learn love and reverence for Nature's beauties."<sup>37</sup> The school buildings are too often million dollar rock piles put up without thoughts to the surroundings. White stresses the importance of nature study when he says,

Since man is a creature of Nature somewhere in his educational experience he should learn her ways. As populations increase and man exercises greater dominance in our urban complexes Nature's beauty and kindness are forced into the background. The fact that man's very existence is completely dependent upon plants should be impressed upon young minds in order that we may all learn to live with rather than abuse her.<sup>38</sup>

Economic necessity will usually dictate the use of plant materials in several ways on the grounds, including nature study. Only where space permits, as in a park, can specific areas be so developed.

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<sup>34</sup>John H. Madison, Instructor, Department of Landscape Management, University of California, Davis, California, personal correspondence.

<sup>35</sup>Englehardt, et al., op. cit., p. 128.

<sup>36</sup>John E. Marshall, "Basic Steps in School Plant Planning," American School and University, XIX (1947), 202.

<sup>37</sup>Wm. G. Vinal, "In Plant and Curriculum--Leave Room for Nature," School Executive, LXXII (August, 1953), 64.

<sup>38</sup>R. F. White, personal correspondence.



Cultivated growing plots. This item received the least attention on the survey in the educational classification. However, one Louisiana school principal wrote, "I feel cultivated growing plots are one of the needs of the elementary schools. Children learn science by growing things." A Louisiana teacher commented on the fact that the children want to dig in the soil in the spring and plant things. Perkins and Cocking<sup>39</sup> cite Glenco, Illinois where the Superintendent of Parks has charge of the maintenance of the school grounds. He gets full cooperation from the schools, for tending the plantings is made a part of the curriculum and the youngsters are learning and they love it. They feel a sense of responsibility which pays off in lessened damage to plantings. Broome<sup>40</sup> points out that the tendency for children to experiment with plants and animals has become very pronounced in school programs and states that experimental work in gardening offers another kind of "real education."

Englehardt et al.<sup>41</sup> refer to the great stress on learning activities in the field of science and nature study even in the primary grades. Caring for trees provides a good lesson in time and growth and is also participation in a community service.

#### Functional Site Design Factors

Considerable weight in the survey was given all five of the functional factors by a number of people who ignored the request that only the three most important be checked. Many participants who checked

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<sup>39</sup>Perkins and Cocking, op. cit. p. 27.

<sup>40</sup>Broome, op. cit. p. 73.

<sup>41</sup>Englehardt et al., op. cit.

three commented that the others were almost equally important. Halprin, for example, said, "On the second item, function, how can one be put ahead of the other; these are all important elements, each one having equal merit in its own situation."<sup>42</sup>

Convenient circulation. This factor ranked number one, not only in this category but in all four according to the survey. To landscape architects this should not appear too startling because after consideration of general use areas it is usually the first concrete step most of them take in sketching out a preliminary study. The movement of people, whether afoot or in wheeled vehicles is certainly an important item to consider in organizing space for human use. It is interesting to note that all groups rated it first except the architects who preferred grading, and relegated circulation to second place.

The increasing interest in larger sites has brought more attention to focus upon circulation. Old cramped sites had no room for drive-ways or even adequate walks, in many instances. But new sites of several acres and the increase in the use of motor cars mean that drives as well as walks are needed to carry the traffic flow safely and expediently. Teachers who could not afford cars a few years ago, now cannot do without them. This calls for parking areas. The consolidation of rural schools brings into use school busses, and they in turn need safe, convenient loading and unloading zones. Today, children are taken to school in cars even though the distance is only a few blocks, whereas rural children of some years ago either walked or rode horseback for several miles.

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<sup>42</sup>Lawrence Halprin, Landscape Architect of San Francisco, personal correspondence.

Marshall<sup>43</sup> lists as the first of the basic steps in school site planning the layout of walks, drives, parking areas, and loading zones (Plate XII, Fig. 1). Hamon refers to the traffic circulation system as probably the "first construction after grading is finished." The drive and walk grades should be established on the grading plan. "The drives should connect all necessary points in the simplest and most direct manner consistent with good alignments, grades, interesting forms, and harmonious relationship with the adjacent surroundings."<sup>44</sup> Turn-arounds, convenient passenger discharge zones, and parking areas must be considered. He prefers hardsurfaced drives with curb and gutter. Walks should relate harmoniously with the building, be wide enough to meet the needs--at least five or six feet--and should be as direct as possible.

It might be interesting to note that although circulation rated first there was a noticeable lack of comment on the subject found on the survey forms. This might be attributed to the fact that the need for adequate circulation through the grounds space is so obviously important that comment was not deemed necessary.

Eckbo refers to the need of solving circulation problems for such public buildings as schools on "specific objective grounds."<sup>45</sup>

Englehardt et al.<sup>46</sup> refer to service drives so located that vehicular traffic does not cross student travel routes. The circulation

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<sup>43</sup>Marshall, op. cit. p. 204.

<sup>44</sup>Hamon, "Suggestions for Landscaping Community Schools," p. 3 and 4.

<sup>45</sup>Garrett Eckbo, Landscape for Living (New York: F. W. Dodge Corp., 1950), p. 183.

<sup>46</sup>Englehardt et al., op. cit.

## PLATE XII

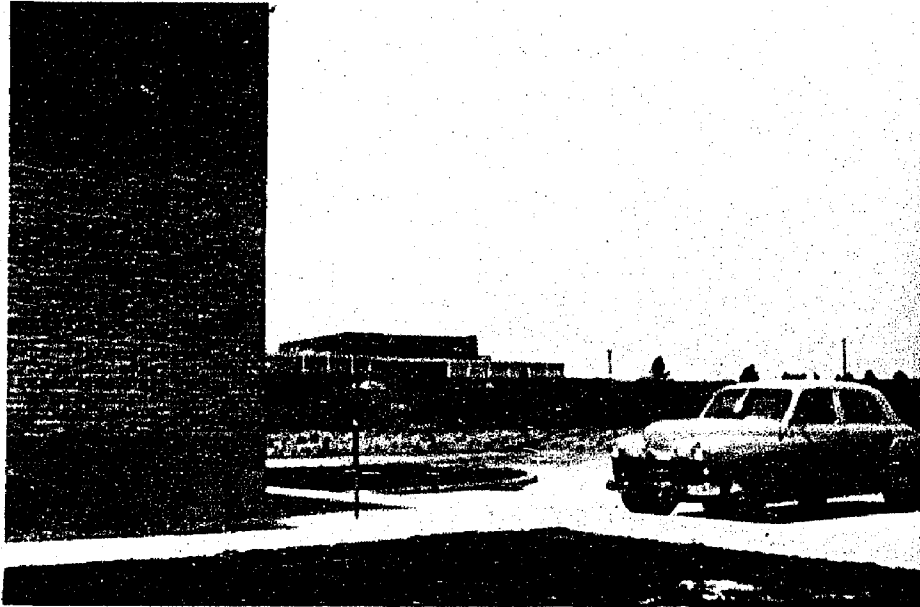


Figure 1. Circulation--drive, parking, sidewalks, and service dock (around corner). Power Elementary School, Jackson, Mississippi



Figure 2. Rough grading operations, including the removal of undesirable species of trees

of school buses should be solved in such a manner that they never have to back up on the school grounds. Parking space is essential for the school. Staff parking should provide one space per classroom. Parking for visitors can ". . . be provided along service roads, on nearby streets, /or/ in additional parking spaces." The use of hard surfaced play areas for parking may be a source of hazard from oil spots.

Hamon<sup>47</sup> emphasized safety in planning circulation. He mentioned the fact that school buses should never back up on a school ground, also that sidewalks should always be provided and foot traffic should never be forced to use driveways. Seagers,<sup>48</sup> too, emphasized the safety factor in relation to circulation. Some of his observations were: drives should be kept to a minimum and should not encircle the school building; and, it is preferable to plan the circulation pattern so that buses will always drive forward. French<sup>49</sup> mentions ease of circulation, direct drives, and the elimination of all outside steps if possible. Wright, an architect, says, "We don't have a drive-in school yet but we do have a drive-up school, and adequate loading and unloading facilities must be included in one's plan."<sup>50</sup> Holly shows his interest in circulation when he states, "In developing a school site, landscaping and its component problems, such

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<sup>47</sup>R. L. Hamon, Chief of School Housing Section, U. S. Office of Education, Washington, D. C., personal interview.

<sup>48</sup>Paul W. Seagers, personal interview.

<sup>49</sup>Prentiss French, "Landscape Architecture for Schools," American School and University, XX (1949), 114.

<sup>50</sup>James K. Wright, "Some Problems of School Plant Development." (Unpublished speech made at the Institute on School Planning at Oklahoma A. & M. College, Stillwater, Oklahoma), January 31, 1955.

as drainage, roads, walks, grade, lawn, etc. must be considered."<sup>51</sup>

Grading and drainage. This factor was considered quite important in the survey and was ranked close to the preceding one. A number of comments relative to drainage were noted, especially from the Louisiana teachers. For example, one wrote, "Proper drainage is so important in planning play areas for primary children." Another noted that, "It is important to be sure that all playgrounds have proper drainage." Low, flat topography and high rainfall emphasize this problem.

The extent of this problem is one influenced by the site itself and goes back to site selection, a major area of work in itself. For many reasons, sites selected for elementary schools are often not the most desirable. The judges of the 1953 National Competition for Better School Design<sup>52</sup> made this point in summarizing the competition. They felt that many of the sites were poor or difficult to work with for best results. It was their suggestion that if more attention were given to site selection and the acquiring of sites of a proper size and quality it would prove economical in the long run. Krabbenhoft<sup>53</sup> describes a site which he developed for an elementary school in Omaha, Nebraska as being too steep for housing. Located in a new residential area it was 318 feet by 645 feet and varied 40 feet in elevation. This plan required much grading and 1600 linear feet of retaining wall in order to provide

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<sup>51</sup>C. E. Holly, "The Planning and Construction of Louisiana School Buildings," Louisiana State Department of Education Bulletin No. 711, (1950), p. 48.

<sup>52</sup>School Executive, Announcement of the Winners of the Third Annual (1953) Competition for Better School Design in the United States and Canada, LXXIV (March, 1955), 49.

<sup>53</sup>Kenneth R. Krabbenhoft, "Development Plan for an Elementary School in Omaha," Landscape Architecture, XLII (April, 1952), 123.

adequate, useable space for organized games, play equipment and outdoor classroom areas.

Collins,<sup>54</sup> an engineer, strongly suggests that final grading operations be included in the building contract to eliminate the difficulties often encountered when later grading damages water lines, sewers, or other underground utilities.

Sasaki<sup>55</sup> points out that drainage may entail subsurface drainage with adequate, properly located and designed inlets, outlets, and manholes.

The purposes of grading are listed by Hamon as follows:

1. To facilitate drainage,
2. to provide appropriate bases and surroundings for buildings,
3. to provide concrete conditions for the special uses to which the graded areas are to be devoted, and
4. to improve appearance.

Rich soil and manure should be incorporated in the surface before planting if the original soil is poor. Terraces or retaining walls may be required if the soil tends to wash.<sup>56</sup>

French<sup>57</sup> points out that careful planning may reduce the amount of grading necessary. Ground areas require about a two percent slope for adequate drainage. He, too, mentions the aesthetic value of proper grading, saying that the effect may be subtle but can make or ruin the composition.

Eckbo, in referring to the basic elements of the landscape states,

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<sup>54</sup>W. J. Collins, Jr., "Some Problems of School Plant Development," (Unpublished speech made at the Institute on School Planning at Oklahoma A. & M. College, Stillwater, Oklahoma), January 31, 1955.

<sup>55</sup>Sasaki, personal correspondence.

<sup>56</sup>R. L. Hamon, "Suggestions for Landscaping Community Schools," p. 3.

<sup>57</sup>French, op. cit.

Earth is important to landscape design in two ways. It is the foundation floor, or bottom, of the garden and park spaces which we develop; and it is the medium in which one-half of each and every plant, large or small, lives and grows. Its form is relevant to the first, and its content to the second. . . . The form is a practical problem insofar as questions of drainage and of the maintenance of an adequate depth of topsoil are concerned. Beyond those it becomes functional--the question of use; and aesthetic--the question of appearance.<sup>58</sup>

Careful thought should be given to saving topsoil for the finish grade and to the removal or retention of existing trees (Plate XII, Fig. 2).

Ease of supervision. While this was in third place, below the two preceding factors in the survey, it dropped to about half their value percentage-wise. The teachers rated this higher than did others participating.

Tritenbach<sup>59</sup> cites the need of easy supervision of the various use areas and play activities, as does King.<sup>60</sup> It is the responsibility of the site planner to keep this factor in mind during the planning stage in order to avoid planting or construction that might interfere with supervision.

Climate controls. Although this item did not rate very high in the survey it could be noted that the teachers who have daily contact with the school plant rated it highest. Quinlan, of Kansas, whose landscape students won a national competition on climate control in New York in 1953, stated,

I think that the principle of climate control could be used to a great advantage in connection with school grounds. . . . From the aesthetic standpoint, climate control can be correlated with

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<sup>58</sup>Eckbo, op. cit. p. 79.

<sup>59</sup>Tritenbach, personal correspondence.

<sup>60</sup>J. H. King, Principal of Jefferson and Will Rogers Schools, Stillwater, Oklahoma, personal interview.



attractive plantings for good wind protection and maximum sunlight . . . care must be used in the planting of trees for correct casting of shade where it will be the most effective.<sup>61</sup>

An Oklahoma teacher commented on the shelter areas along one side of their newer buildings which she believed to be very advantageous.

Caudill and Bellomy, in discussing the architectural design of schools with a spatial approach say that "If the temperature, the breeze, and the view are just right, if the sun is behind a cloud and the necessary teaching equipment is available, a class could be conducted in the middle of a pasture."<sup>62</sup> But a roof is needed for shade and protection from rain. Walls may be needed as a windbreak, or sound and temperature barrier. These may be opaque where it is desirable to block the view or transparent where desirable views may be had. These elements of a building are designed for climate control. Likewise outdoor elements in the landscape design contribute to one's comfort both in an adjacent building or in outdoor areas. White reports on this phase in a study of ". . . how landscape design elements, including plant materials (trees, shrubs, vines, etc.), walls, fences, and other structures affect air movement."<sup>63</sup> The use of shelterbelts and windbreaks on the Great Plains has previously established their influence upon air movement. These tests indicate that,

1. Planting can materially affect the movement of air through and about buildings.

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<sup>61</sup>Quinlan, personal correspondence.

<sup>62</sup>William W. Caudill and Cleon C. Bellomy, "Spatial Approach to Planning the Physical Environment," American School and University, XXVI (1954-55), 437.

<sup>63</sup>Robert F. White, "Effects of Landscape Development on the Natural Ventilation of Buildings and Their Adjacent Areas," Texas Engineering Experiment Station Research Report, No. 45 (March, 1954), 7.

2. Depending upon the way it is used, planting may either augment or reduce the natural air flow through the building.
3. Planting may cause actual change of direction of air flow within the building.<sup>64</sup>

The organized nurserymen have prepared a small illustrated pamphlet on the subject. "Nobody likes to be cold in winter or hot in summer and these extremes can be moderated to considerable extent by proper plantings . . . in some instances up to 10° or 15°F."<sup>65</sup>

In referring to the landscaping elements and their effect on air flow Caudill says, ". . . they have tremendous effect on the physical environment of interior spaces."<sup>66</sup> They may affect temperature, light and sound as well. "Landscape material may be used to divert air flow into rooms that do not face the breeze."<sup>67</sup> This has been used at Glencoe, Oklahoma on a new elementary school building. The building is square and the interior is made up of four classrooms. The two on the south receive plenty of air from the prevailing southwest breeze, but the north two would not have had any appreciable amount without the aid of two walls erected at right angles to the north-south axis of the building, one on the west toward the north end which serves as a "scoop" and directs the air into and across the two north rooms. The second wall is placed toward the middle of the east side and serves as a baffle to reduce the air pressure and aid the flow from the other side.

The new Travis School of Port Arthur, Texas includes a small

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<sup>64</sup>Ibid., p. 7.

<sup>65</sup>"Ten Ways to Control the Climate Around Your Home," The American Association of Nurserymen pamphlet, (1950), p. 1.

<sup>66</sup>William W. Caudill, Toward Better School Design (New York: F. W. Dodge Corp., 1954), p. 87.

<sup>67</sup>Ibid., p. 89.

enclosed patio to serve as an outdoor teaching area and to screen the view of the playfield from the music room (Plate XIII, Fig. 2).

Surface stabilization. This received the least recognition of the items in the functional category but drew a number of comments such as the one from an Oklahoma teacher who said,

On several days this year children were kept inside because visibility on our playground was zero. Dirt blowing from an area with no grass or plant life caused this. /We/ felt our playground could have been much better if this had been taken care of in planning.

An example of rapid erosion is seen in Plate XIV, Figure 1. Another said, "... we are sowing grass seed to keep down the dust." Speaking of hard surfacing, one said, "No! Too many accidents." Still another wrote, "To me the greatest need seems to be a turf that can withstand the hard use and could be . . . grown and well established within the free summer period." A grass well adapted to the area should be selected. Native Buffalo grass (Plate XIV, Fig. 2) is well adapted to sunny locations and prairie soils of Western Oklahoma and Kansas, for example. Eckbo, referring to surfacing says,

Whatever forms we create in the land, however flat, however vertical, however subtly plastic or naturalistic in their relations of concavity and convexity, will be unavoidably subjected to all those forms of natural weathering and erosion, those mechanical and chemical attacks of air and water, which are peculiar to the region. Earth left or kept uncovered is earth eroded and changed, unless under the most careful and scientific cultivation. Except in the most arid regions, with less than ten inches of rainfall, nature will cover the ground with her own volunteer grasses and weeds, if we don't. Therefore an essential part of any program of re-shaping the land is its surfacing, once re-shaped. For such surfacing we have essentially two kinds of materials, organic and inorganic, planting and paving.<sup>68</sup>

Davis states that, "The turf on campuses today is too frequently taken for granted by administrators, faculty and students alike until it

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<sup>68</sup>Eckbo, op. cit., p. 82.

## PLATE XIII

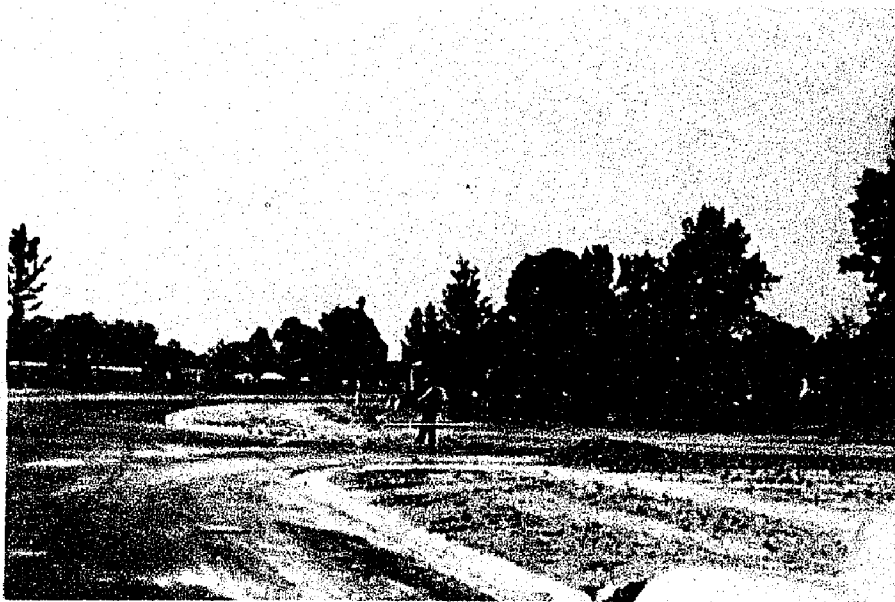


Figure 1. Finish grading, using grader blade and hand work



Figure 2. Outdoor teaching area--Travis School, Port Arthur  
Texas

## PLATE XIV



Figure 1. Site badly eroded before building is completed

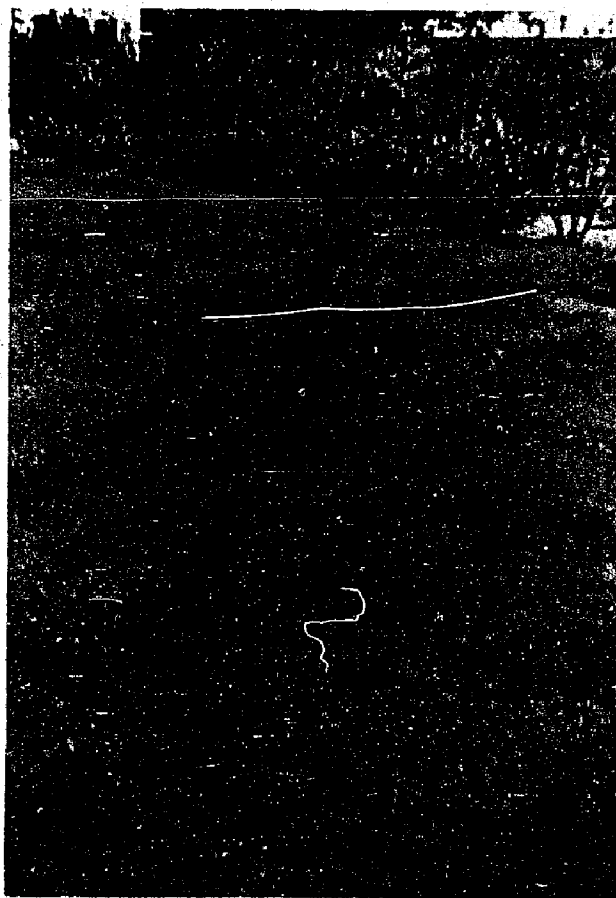


Figure 2. Newly established buffalo grass turf in Stillwater

becomes conspicuous by its absence."<sup>69</sup>

Shafer<sup>70</sup> reports on the use of a number of surfacing materials--grass, sand, clay, cinders, gravel, crushed stone, Portland cement concrete, and bituminous treatments. Emulsified asphalt, according to Shafer, gave fully satisfactory results. Plate XV, Figure 1 illustrates a multiple use area of bituminous asphalt on a New Orleans school ground.

Shire<sup>71</sup> refers to dirt treated with oil (needs high clay content) and tough grasses for soft surfaces. Under hard surfacing he covers bituminous concrete, cork and asphalt emulsion, and hot mix cork-asphalt. The latter has the greatest resiliency but is the most expensive. He recommends concrete only for such special-purpose uses as shuffleboard.

Hamon<sup>72</sup> prefers a good turf for most of the area. In Hawaii he notes that sufficient space is available to alternate play areas, thus allowing turf to recover from hard use.

Hamon et al. believe that,

Turf is the most desirable surface on playground areas, but constant use makes it difficult to maintain. A water sprinkler system for planted playground areas will increase the ability of the grass to withstand ordinary playground wear.

Torpedo sand, gravel loam, and limestone screenings are satisfactory surfaces for apparatus areas. Landing places can be made soft by spreading shavings, sand, or sawdust under the apparatus.

Hard surfaces such as asphalt or concrete seem best for court games. The advantages of a hard surface are: it is available for

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<sup>69</sup>Fanny-Fern Davis, "Better Lawns for Schools and Colleges," American School and University, XV (1943), 130.

<sup>70</sup>R. W. Shafer, "Playground Surfacing," American School and University, XX (1948), 118-122.

<sup>71</sup>A. C. Shire, "Playground Surfacing," American School and University, XIII (1941), 267-270.

<sup>72</sup>Hamon, personal interview.

## PLATE XV

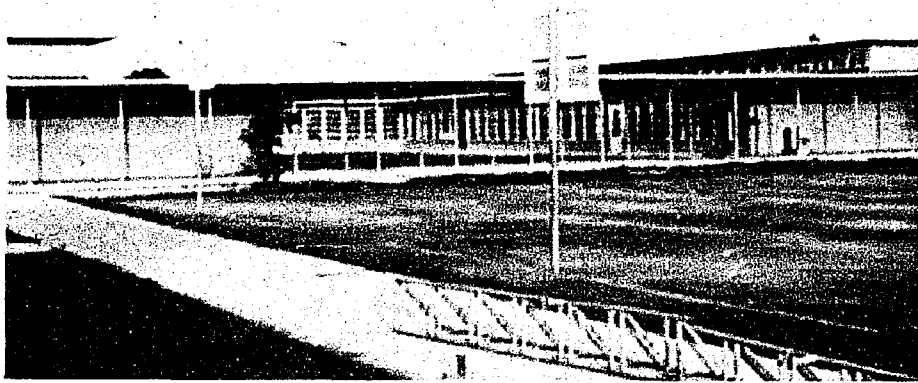


Figure 1. Bituminous asphalt surfacing for a multiple use play area on a New Orleans school ground

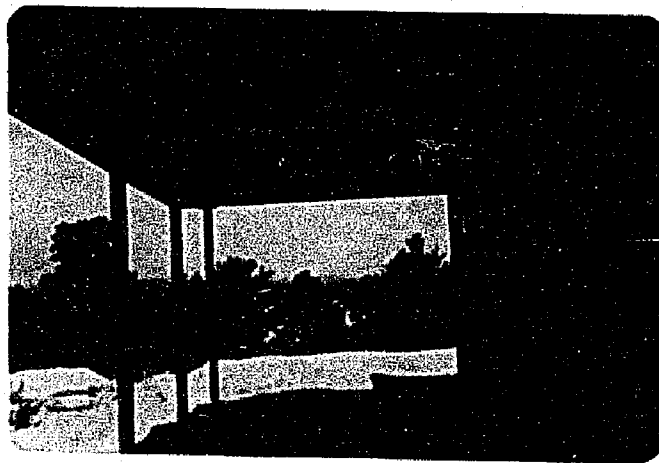


Figure 2. Site selection, taking advantage of a desirable natural view

use the entire year; there is never any mud or dust; the surface is even and lasting; it is more economical over a period of years; it is ready for use immediately after a rain; it can be cleaned easily; it is less injurious to hands and knees; street shoes do not injure it; markings may be made clear and permanent; and the surface does not soil clothes or game supplies.<sup>73</sup>

Englehardt et al.<sup>74</sup> recommend open grassed play areas for group games and general play. A paved play area serves as a valuable function following rain and snow storms. The surfacing of such areas is a problem and still has not been fully solved. "Schools await a fully satisfactory, inexpensive surfacing for outdoor play areas." They further state that concrete is rather hard on children--and expensive. Cork or rubber added to asphaltic preparations provide a more resilient surface but one also expensive. Perkins and Cocking, on the subject of hard surfacing say, ". . . it is still an academic question whether to surface the playground with concrete or asphalt. I never tried to slide to home plate on concrete in my youth . . ." <sup>75</sup>

In California where such a large portion of many school grounds is hard surfaced, Sourdry in referring to these areas says, ". . . not just acres of asphalt!" <sup>76</sup> Again in a letter to Thomas H. James, Chairman of the Committee on Playground Surfacing and Equipment Standards, he says,

Safety of children using equipment over pavement can be put in proper perspective, I think, by the school scandals in Los Angeles, strictly N.G. All the prating about cheaper maintenance for such areas is hogwash. As a consequence of paving the areas, they aren't even swept, and broken glass, rocks, etc. have greater penetrating power (to the skin of course) and more serious accidents occur even

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<sup>73</sup>DeWitt, op. cit., p. 5-6.

<sup>74</sup>Englehardt, et al., op. cit., p. 127.

<sup>75</sup>Perkins and Cocking, op. cit., p. 24.

<sup>76</sup>Amedeo M. Sourdry, Landscape Architect, Oakland, California Park Department, personal correspondence.



where (as in Oakland schools) they have taken all equipment off, leaving 'acres of asphalt' surrounded by 'miles of chain links.' The very drabness and prison-yard qualities engender in the students reaction, revolt and reprisal. Oakland Park Department's answer to this has been to show that flowers, lawn, trees, choice shrubs, fanciful mural walls can be in contact with thousands of children per day, year in and year out, in unsupervised high-density use areas, open free twenty-four hours per day without vandalism and without undue cost of maintenance. This is accomplished through proper design and integration of all the factors involved.<sup>77</sup>

Vaughan, speaking of elementary school planning, mentions some of the fine schools in the Bay Region of California and also says, "We have some of the worst outdoor school developments imaginable. In the city of Richmond, where I live, everything is paved with asphalt from fence line to fence line."<sup>78</sup>

Such areas certainly could not contribute much to broadening the minds of children through nature study, or an appreciation of attractive surroundings enriched with the cheerful colors, varying textures and interesting forms of plant materials.

#### Visual Site Design Factors

Ranking next to functional is the aesthetic, the attractiveness of the educational environment. Much can be done in this phase of the work so often overlooked. Peterson<sup>79</sup> suggests that some areas be reserved for landscape effects alone with no play or activities in the area.

Every child needs to be exposed to beauty. The difficult art of living is simplified materially when pursued in surroundings that radiate beauty, for beauty is essential to life and happiness. The child cannot find his greatest personal satisfaction in play in a

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<sup>77</sup>Ibid.

<sup>78</sup>H. L. Vaughan, Chairman, Department of Landscape Architecture, University of California, personal correspondence.

<sup>79</sup>I. L. Peterson, Assistant Professor, Department of Landscape Architecture, University of Illinois, personal correspondence.

drab and ugly environment. . . . .

Children naturally love beauty and nature, and play has a much greater influence and appeal if it is carried on amid attractive surroundings. Experience has shown that many children will walk farther to play in a more pleasant environment--in fact they will walk past a small barren area in order to reach an attractive one.

The relationship between well-conceived landscape design and attendance is illustrated by the experience in a city where the attendance at a large playground doubled in three years' time after the playground had been made attractive through plantings, although there was no increase in population in the district. . . . .

. . . design must take into account the arrangement of spaces as well as objects, and these various areas and objects must be inter-related into one harmonious composition. All the features of the area--buildings, trees, shrubs, walks, apparatus, courts--become definite elements of the design. The arrangement of these elements so their relation one to the other produces the maximum of use and beauty is the function of design.<sup>80</sup>

Integration of buildings and site. This factor was listed in the survey as the most important in the visual classification, and after looking at the large number of new elementary school buildings in surrounding states sitting stark naked, so to speak, on (not "growing out of" as Wright would have them) a bare plot of ground one can see why it was so rated. "Beauty in a school grounds . . . should be a perfect coordination between the material and the form of the building and grounds, and its evident use and purpose."<sup>81</sup> Such coordination may be achieved, for example, in the repetition of some of the materials of the building in structures on the grounds. Steps, planting boxes, benches, etc. may be constructed of the same type of brick as the building, thus aiding in the integrating of the building and surroundings. A school superintendent from New York

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<sup>80</sup>George D. Butler, Recreation Areas, Their Design and Equipment (New York: A. S. Barnes and Co., 1947), 145-146.

<sup>81</sup>H. O. Whittemore, "Planning School Grounds--the Utilitarian and the Aesthetic," American School and University, XVI (1944), 220.

believes that this". . . should be an inherent part of the architect's site planning." Frank Lloyd Wright's philosophy of organic architecture-- of buildings growing out of the site, as an integral part of the site is a prime example of this factor. Integration of materials is essential and no part of anything is really valuable in itself unless it is an integral part of a harmonious whole, according to Wright.<sup>82</sup>

Eckbo believes that, ". . . the function of landscape design is more than the direct design of outdoor space arrangements. In the large sense it is the continuous establishment of relations between man and the land . . ."<sup>83</sup> An example of building units hugging a hill and fitting the contours may be seen in Plate XIV, Figure 1, page 70.

Establishment of good relationships between indoor and outdoor spaces. This factor is very closely related to the preceding one but is concerned with the organized space within the envelope of the building (architecture) and its relation to the organized space outdoors (landscape architecture) and extending on into the natural surroundings. One of the most appropriate comments came from a Western Oklahoma school superintendent who wrote, "The best architecture does not stop at the building line but extends throughout the site."<sup>84</sup>

The outstanding characteristic of nature is unhampered growth, free of man's restraint. Man's characteristic is purposeful organization. Put these two together in landscape design and you have an organization of natural materials in such a way as to serve man's purposes yet

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<sup>82</sup>Frank Lloyd Wright, cited by Eckbo, op. cit., p. 76.

<sup>83</sup>Eckbo, op. cit., p. 6.

<sup>84</sup>Al Harris, Superintendent of Schools, Clinton, Oklahoma, personal correspondence.

allow continuance of their development with a minimum of interference.

This is a principle for organic form in the humanized landscape.<sup>85</sup>

Hereford,<sup>86</sup> speaking of contemporary schools, refers to the efforts of the architects to open up the buildings by the use of large glass areas (Plate I, Fig. 2, Page 4) and thereby achieving a continuity with the out-of-doors.

Waechter and Waechter say, ". . . the interrelationship between playground and playroom is so close that one can hardly draw the line between outside and inside . . . the surroundings . . . are about as important as the building itself."<sup>87</sup> They further mention the early work (prior to 1935) of a German architect who designed a school at Frankfurt, Germany like a four leaf clover, each room having its own outdoor play yard adjacent.

Caudill points out the need for correlation between indoor and outdoor play and study and the relationship between outdoor classrooms and those of the building itself. In his bulletin Caudill describes the John Muir Elementary School of Martinez, California designed by John Lyon Reid as "a classroom unit made up of both indoor and outdoor areas, so that the two form a unified and integrated whole, so that the teacher can easily supervise activity carried on simultaneously in both areas. . ."<sup>88</sup> Eckbo, Royston, and Williams designed the landscape plan and working in collaboration with the architect and the school officials the desired

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<sup>85</sup>Eckbo, op. cit., p. 41.

<sup>86</sup> Karl T. Hereford, "Must the Contemporary School Architect Design the Program, too"? School Executive, XII (1953), 75-87.

<sup>87</sup>H. H. Waechter and Elizabeth Waechter, Schools for the Very Young (New York: F. W. Dodge Corp., 1951), p. 101.

<sup>88</sup>Caudill, "Space for Teaching," p. 46.

indoor-outdoor relationships were established. Another school, designed by Neutra, for a tropical climate is actually a semi-outdoor school with fold-up walls on one side of each classroom unit thus achieving complete harmony (thanks to the climate) between the interior spaces and the classroom patios adjacent.<sup>89</sup>

Through careful site selection, building orientation and design that included large glassed areas the new Texas school building in Plate XV, page 72 illustrates how advantage was taken of a beautiful view across the forested valley to the west.

Enrichment of the landscape. Parents and teachers felt that this factor was the most important in its class, according to the survey. Brown<sup>90</sup> says that there is no bit of ground where beauty is more appropriate than a school grounds. Beauty, or enrichment, is provided by such colorful and interesting elements as Eckbo suggests: borders, special plants, specimen trees and shrubs, rocks, pools, sculpture, murals, etc. integrated with the surfacing and enclosing elements which may in themselves provide enrichment as well as serve their functional purpose. He refers to these enriching elements as being woven into the spatial pattern formed by the surfacing and enclosing elements--not just "dropped" into it.<sup>91</sup>

The landscape architect's knowledge of artistic principles, of plant forms, and of design are brought to bear on the materials, whether plant or inert, which he weaves into the plan. Colors, textures, and forms

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<sup>89</sup>Ibid.

<sup>90</sup>C. J. Brown, op. cit.

<sup>91</sup>Eckbo, op. cit., p. 64-65.

are integrated into the spatial volume to produce pleasing effects.

Eckbo proposes three general principles basic to the use of materials for any creative purpose:

1. That the materials express their own "inborn" characteristics and possibilities.
2. That they have importance and character only as they relate to their surroundings and situation.
3. That they are used chiefly to organize space for people to use.<sup>92</sup>

One of the few elementary schools visited by the author which showed that some effort had been made to enrich the environment was the Sam Houston Elementary School in Port Arthur, Texas (Plate XVI, Fig. 1 & 2). Although only about two years old a fairly good turf was established, trees and shrubs had been planted, and colorful annuals filled the planter boxes.

Surfacing. In the survey as an aesthetic factor it fared better than as a functional one. In addition to the physical stabilization of the soil as it exists or after grading, there is the approach that the surface may be altered to improve its appearance and provide a pleasant rolling surface on what might be a monotonously level site, for example. Eckbo says that,

The soil is handled horticulturally, engineeringly, structurally, sentimentally, naturalistically, conservationally; but seldom as a material with a definite three dimensional sculptural quality apart from, or in addition to, these other factors.<sup>93</sup>

Once having arranged the soil surface, the problem arises as to how best one can stabilize it against the forces of nature. A purely functional way might be to cap it with a surface of concrete or asphalt as has been done on the California school grounds previously mentioned.

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<sup>92</sup>Ibid., p. 76-77.

<sup>93</sup>Eckbo, op. cit., p. 83.

## PLATE XVI



Figure 1. Sam Houston Elementary School, Fort Arthur, Texas  
Caudill, Rowlett, Scott & Associates, Architects



Figure 2. Interior court of Sam Houston School

This, however, has little to recommend it from the visual point of view--in fact it has a number of functional fallacies--it is rough on clothes and skin, hot and glaring in the sun, etc. From the aesthetic viewpoint a more pleasant situation might result from a judicious mixing of some hard surface for play after a rain, some good grass turf, and, for variety, a patch of ground cover on a shady slope. Then, too, one might introduce color, texture and line to the hard surfaced area by adding a visible aggregate or a pattern of header boards or concrete stain. Roberto Burle-Marx of Brazil<sup>94</sup> has made quite a change in Brazilian gardens. A botanist and painter turned landscape designer, he creates surface patterns of irregular curving shapes using a variety of grasses and ground covers together with water and stone surfacing to produce a rich landscape painting. His is one of the most highly developed surface treatments of our time combining surfacing and enrichment. The principle, using indigenous materials, could be applied to certain semi-restricted areas of a school grounds.

Blom<sup>95</sup> of the Stockholm, Sweden Park Department has made good use of surface molding in certain areas creating an interesting, undulating surface with its resulting shadow patterns.

Organizing outdoor spaces with enclosures. This item received a relatively low rating, giving some indication of its value in the thinking of those who participated in the survey. An observation of school grounds indicates that many of them have no spatial organization, others may have one enclosing element, a forbidding net of zinc-coated metal

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<sup>94</sup>Peter Shepeard, Modern Gardens (New York City: Praeger, Inc., 1954), p. 39-43.

<sup>95</sup>Ibid., p. 39-43.



surrounding the grounds (Plate XVII, Fig 1). Few have some breakup of space into useful units.

A Louisiana teacher writes, "Areas should be large enough to separate playground areas for children of various ages." Another, from Oklahoma, states, "We find that children get along better when each grade or perhaps two consecutive grades are assigned to a particular part of the playground area. This should be kept in mind while planning it."

A California landscape architect says that fences are also very desirable as a means of reducing damage from vandalism at night as well as a means of keeping children from running into the street, etc. He refers to older youths doing the damage--not the elementary children.<sup>96</sup>

Vandalism seems to be more prevalent in larger cities and in communities where there is a lack of pride in personal or municipal property. Of all the replies received only two from California referred to this problem. On a recent visit to New Orleans to see the new schools there, the writer noticed that in the Negro areas where fine, new schools have been built amid squalid residential surroundings that armed guards patrolled the area as a check against vandalism. Broken windows and equipment mutely called attention to the need. On the other hand, in Jackson, Mississippi in a Negro area where there was evidence everywhere of personal pride in surroundings, the trees, shrubs, and flowers found around the neat, well-kept home grounds were repeated in the adjoining school grounds (Plate XVII, Fig. 2) which had evidence of more landscaping activity than some of the white schools. Why? An attitude of mind in people. What fostered it is open to conjecture, but it is interesting to note its

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<sup>96</sup>Tritonbach, personal correspondence.

## PLATE XVII

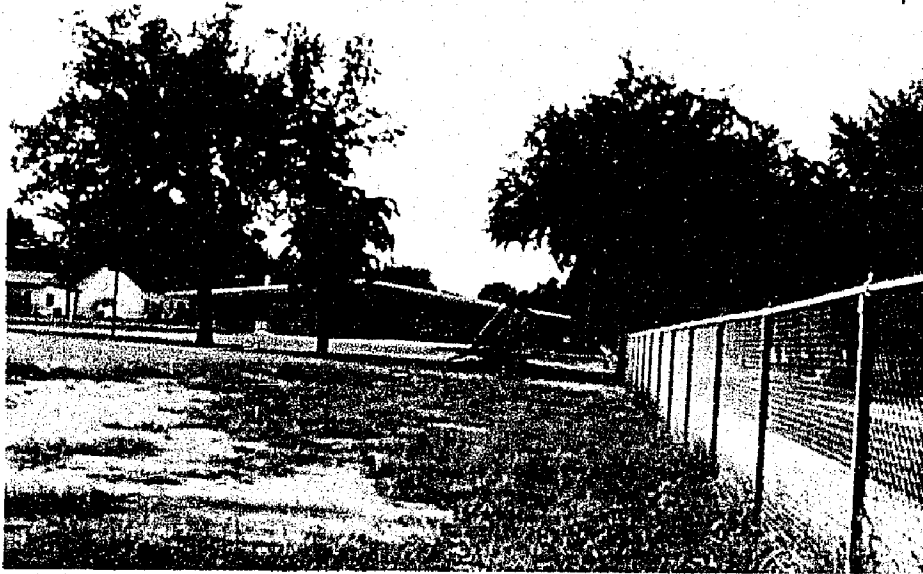


Figure 1. Bare metal fencing around the new Roosevelt School, Miami, Oklahoma

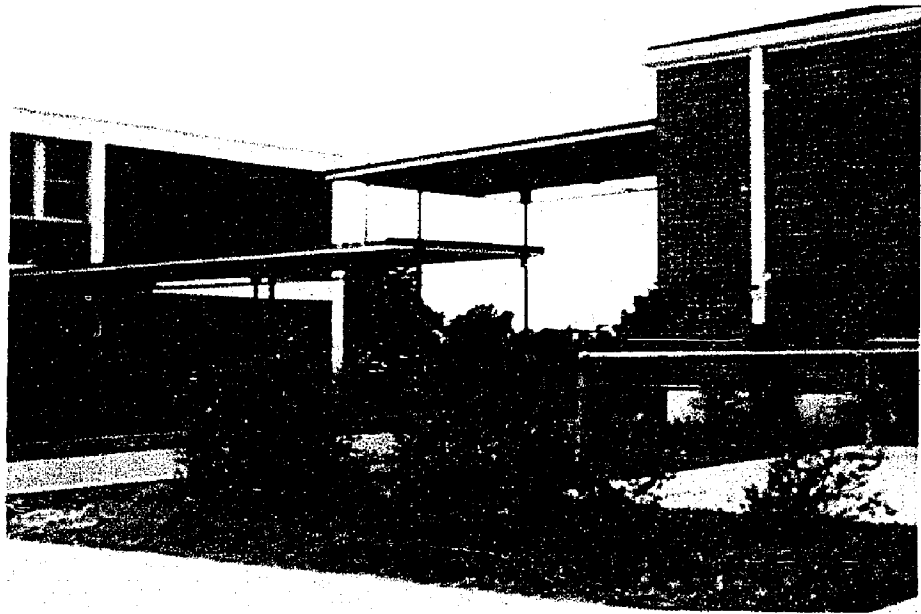


Figure 2. Jim Hill School (Negro) in Jackson, Mississippi

existence. As Eckbo points out it is not enough for the landscape architect to understand nature--he must also understand man which is a much more complex and subjective task.<sup>97</sup>

The usual enclosures about the periphery of the grounds, if needed for safety's sake, should be combined with plantings to lessen their bleak appearance. Screnson says that preferably, fencing should not be used if plantings or other means can be employed to keep the children out of the street.<sup>98</sup> Many ways are available to the designer to provide spatial organization elements. Walls of masonry (Plate XI, Fig. 1) in a variety of materials and forms may be opened up with penetrations and fenestrations to allow air movement and visual contact if desirable, thus overcoming the heavy solid effect so often noted in this type of enclosure. Louvered baffles or fences of durable woods like cypress and redwood can be constructed in many interesting ways. They must be heavy enough to stand the exploratory efforts of little people. Horizontal louvers should not be used where little feet can turn them into ladders. Interesting combinations of masonry, wood, wire, plastic, etc. can overcome the monotony of just one material and add an enriching experience to the beholder, particularly if color is not overlooked.

Plants provide many types of enclosure from the solid, clipped hedge, the loose, informal border to the spatial definition provided by large shrubs and tree trunks.

Combinations of construction material and plant material in the form of planting boxes, for example, can define spatial limits and add a great deal to the attractiveness of the area through the permanency of

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<sup>97</sup>Eckbo, op. cit., p. 36.

<sup>98</sup>Screnson, personal interview.

construction and the everchanging variety of color and texture in plants through the different seasons of the year.

The buildings, of course, provide enclosing elements with their walls, and the alert designer will use them to advantage. Ground forms, existing or constructed, may also serve as enclosure whether surfaced with plant material or combined with constructed elements such as retaining walls.

From such a wealth of source material may come an interesting variety of enclosing elements to define the spatial volumes in which children play and learn.

#### Community Use

The school-park concept has become quite a subject of discussion in recreation and education circles. Judging from the number of the newer plans based upon it, interest is growing in that direction. Madison states that,

I greatly favor the combining of school and park programs as the effect is of a larger park in the evenings, of a larger playground or school yard in the day. I also think that having the school overlook the recreational activities of the community creates a greater feeling of warmth and interest in the educational program.<sup>99</sup>

Sasaki notes that so many of "the newer elementary schools are being designed as community centers as well as schools. The school-park idea is really quite wide-spread now."<sup>100</sup>

In discussing the school plant as a recreation center, Butler notes:

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<sup>99</sup>Madison, personal correspondence.

<sup>100</sup>Sasaki, personal correspondence.

The desirability of using the school plant for recreation is widely recognized today in theory, law, and practice. . . . Sound educational policy requires the opening of public school properties to public use outside school hours. . . . The use of schools for non-school purposes has won specific legislative approval in 36 states. . . . In most cities programs organized and conducted under the leadership of a public recreation agency make the most use of school plants.<sup>101</sup>

In most cases the community needs and the things required to provide for them are the same as those provided on the school grounds. With a little extra planning the two uses can be correlated, with but little additional expense and can provide for the whole community instead of just one age group segment of it.

The survey indicates that most of those contacted approve of the school-park plan and that the use of the play grounds under proper supervision is the first need with service facilities second. Some indicated that a community use room or building be provided in addition to outdoor meeting spaces. This is desirable, of course, but falls into the realm of architectural planning. The nature study areas could be developed into a park-type atmosphere.

Both school people and planners indicated the need for outdoor picnic facilities. An Oklahoma teacher would like to have provision made for outdoor eating in the fall and spring, weather permitting, instead of using the lunchroom. As she says, "Kids love picnics."

The outdoor theater idea did not receive too much support. However if it could be a simple manipulation of topography and not an elaborate Greek monument it could serve many useful purposes for large meetings, graduation exercises, athletic events, etc.

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<sup>101</sup>George D. Butler, "The School Plant as a Community Recreation Center," American School and University, XXIII (1951-52), 151.

Englehardt et al.<sup>102</sup> note that the object of good site planning is to utilize intelligently every square foot of area. This directly fits into the community use program. Supervised recreation on the school grounds after hours will become reasonably widespread.

Singleton,<sup>103</sup> a professional site planner, believes that the development of elementary schools in connection with neighborhood parks will help a great deal in achieving a well-rounded site plan and program for all the community. He points out that nature study areas and outdoor theaters are best located in the park portion and that properly planned service facilities in the school building complex can serve people who are using the park area.

Landry<sup>104</sup> states that the taxpayers would have to pay less for the same service through an integration of park and school facilities.

McFadzean made a good point in a letter to the editor of the Chicago Daily News when he wrote,

Worn-out and obsolete school buildings and constantly increasing pupil population are threatening the much vaunted public education system. If the youth of America are to have adequate preparation for adult living, as you point out, the situation poses a most critical problem from the taxpayers' standpoint.

This is even more acute with respect to those taxpayers whose families are grown up and who expect, in the future, to derive no direct benefit from the public school system.

If those who must provide the funds are to be persuaded to contribute, then they must be assured of every possible benefit and return on their investment. This demands that public school properties be acquired and developed with a broad concept of community service, and beyond that of strict educational functions.

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<sup>102</sup>Englehardt et al. op. cit.

<sup>103</sup>W. B. Singleton, Site planner, Baton Rouge, Louisiana, personal interview.

<sup>104</sup>Kenneth C. Landry, partner, Bodman Murrell and Smith, Architects, personal interview.

Some of the more progressive communities of the country are already accomplishing this. . . . These communities are adopting the principles and practices so admirably proven in our own neighboring community of Glencoe, where public school buildings and grounds are being made to provide airy, pleasant and healthful quarters for the regular school functions.

At the same time these buildings are designed to provide (after school hours) for community, social and recreational activities for adults as well as pupils.

Likewise, the school grounds are designed and beautified to afford all the advantages to the community which would be provided by a park . . . . .

In our cities and surrounding areas, millions of dollars are invested in public park developments alone which could well be expended for the dual purpose of not only providing school grounds but of affording centers for other wholesome community uses. Much of the problem could be solved if, at Board level, advanced thought were applied to a greater correlation between school and park developments and the operation of these properties.<sup>105</sup>

#### Summary

The nation is slowly realizing that something must be done about providing adequate facilities for the rising tide of American school children pouring into our crowded elementary schools. Educators speak of a comprehensive new program covering the mental, physical, emotional, and social development of these young students and designed to produce alert, strong, stable, well-informed citizens of tomorrow. However, at the very age when children are passing through this formative period and are easily impressed by everything they see, most of them are attending school in a crowded, poorly designed building (or a fine contemporary building with all the latest innovations) located on a bare hillside with little or no evidence of site planning or effort to provide attractive, useful surroundings.

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<sup>105</sup>John McFadzean, "Suggests Public Get More Use of School Buildings and Grounds," Chicago Daily News (September 22, 1949).

. The site is often a piece of left-over ground, considered undesirable for residential development, bought as a place on which to put a school building--not as an area dedicated to the provision of the best possible educational environment for children.

The landscape architect, professionally trained in land use planning, is the logical choice to develop these bare school grounds into well-organized, attractive, and useful surroundings. He should begin his work in the early planning stages and collaborate with the architect and school officials on the selection of the site and the orientation of the buildings. Here, his special knowledge of site planning can contribute much to the general plan and the relating of building to site.

Contemporary elementary school architecture, designed for children, is quite different from that of a few years ago, as is the present educational philosophy, and calls for a re-appraisal of the approach to this problem. There is little in the literature devoted to site development for elementary schools and almost nothing of a contemporary nature. Therefore, in order to obtain the latest thinking on the subject selected men and women throughout the nation who are closest to the problem and who rank high in their respective fields of work were contacted by personal interview and by mail. Landscape architects, architects, educational specialists, school administrators, teachers and parents all contributed their ideas designed to determine the best approach and the relative value of the component factors of the site design plan.

A fresh approach to landscape architecture as it relates to our new elementary schools is apparent in the opinions of the people contacted. The survey results indicate that certain factors, almost entirely overlooked in practice a few years ago, are now considered as an essential part of the plan. Climate controls, outdoor teaching areas, integration



of building and site, and consideration of the association of indoor-outdoor spaces are examples of this trend.

According to the total survey results a comprehensive site plan organized to provide the greatest measure of good should include consideration of safety in all phases of the plan, minimum maintenance, and future developments. Educational factors of first importance are group and individual play areas and outdoor teaching areas. Functional objectives include convenient circulation; followed by grading to achieve proper drainage and surface usability; and planning for ease of supervision. Visual experiences of value to the growing child are best attained through the integration of the building and site, the provision of good indoor-outdoor relationships, and the enrichment, surfacing, and organization of the landscape space.

In those cases where policy and space permit, the school-park concept of integrating the facilities of these two services conveniently provides for the non-school-period recreation and education of growing children in a familiar environment.

Through the inclusion of these educational and functional factors and visual experiences not available on the usual bare school grounds the landscape architect, working in conjunction with the building architect and the school representatives can provide an educational atmosphere of the highest caliber, because he also calls upon his training in botany, horticulture, art, architecture and civil engineering in giving full measure to the design.

The comments of children attending the few schools where some effort has gone into enriching their environment certainly indicates its value. A little girl in Port Arthur, Texas who attends Sam Houston Elementary School, when asked about the school grounds replied with

enthusiasm, "Oh I really like it!" A small boy at another school, playing after hours on the grounds where he studied during the day, bursting with pride, said, "It's the nicest in town."

## CHAPTER IV

### A SITE PLAN FOR WILL ROGERS SCHOOL

In order to demonstrate the application of landscape architecture to a given problem, Will Rogers Elementary School in Stillwater, Oklahoma was selected as typical contemporary school design and a plan was prepared. An explanation of the situation is presented, followed by the plan.

Stillwater doubled its population between the last two census counts, and suddenly found it necessary to provide new elementary schools for its growing school population. The school board hired the firm of Caudill, Rowlett, Scott and Associates, who specialize in contemporary school design, to plan the buildings needed. One of the first of these was Will Rogers School, planned in association with Phil Wilber, a local architect. Highland Park and Westwood were also designed for Stillwater by this firm.

The architecture of the Will Rogers building is typical of that which has twice won the firm top national awards for better school design. It consists of a two-unit finger design for the classrooms plus an auditorium and a gymnasium. The first six-room classroom unit (Plate XVIII, Fig. 1) was built about five years ago. Construction is now under way on the second classroom unit (Plate XVIII, Fig. 2), while the auditorium and gymnasium are yet to be built.

The buildings incorporate the latest features of educational architectural design. They are described in the dedication brochure as,

## PLATE XVIII



Figure 1. The first unit of Will Rogers School, Stillwater  
Oklahoma--winter of 1953

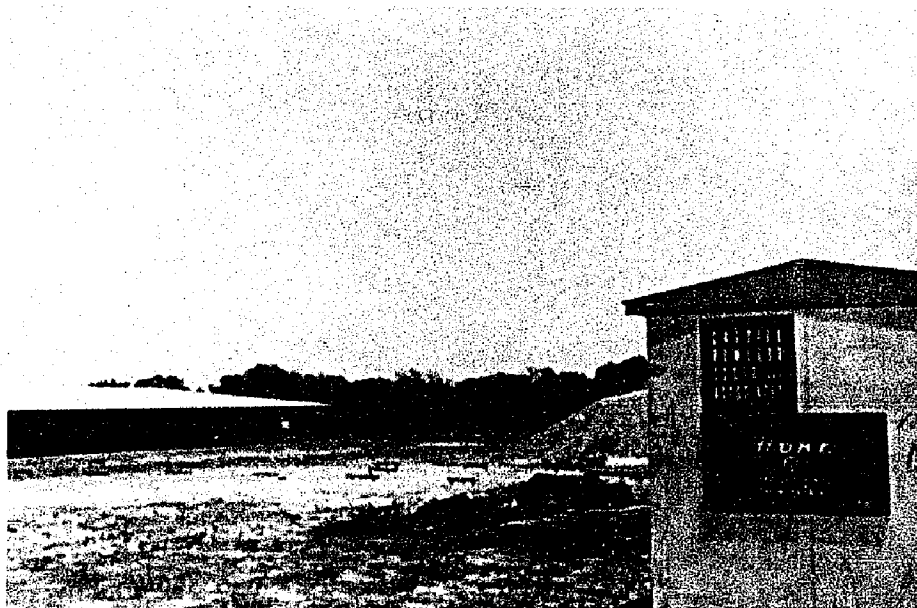


Figure 2. Site of the second unit of Will Rogers  
School, summer of 1955

. . . buildings deliberately conceived and designed to stimulate the maximum physical and mental growth of children. . . . Every facility for learning incorporated in these buildings represents an effort to serve specific educational needs--not only of today but of tomorrow as well. . . . In all ways these new school buildings are child-centered. . . .

Controlled natural lighting insures a maximum of lighting efficiency.

Adequate ventilation is provided by many windows on both the north and south sides of each classroom. The north windows are rather high to reduce heating costs. The deep roof overhang on the south provides cooling shade and eliminates glare. It serves as protection against the weather for the large, hard-surfaced play porch on the south side of each unit (Plate XIX, Fig. 1). There is maximum opportunity for both physical and visual contact with the out-of-doors.

The school building units are located on a plot of ground 286 by 582 feet, an area of two city blocks. Their location and orientation may be seen in Figure 2, the grading plan. This plan shows, by one-foot contours, the topography of the site. There is a change in elevation of 17 feet, rising from a contour of 895 at the northeast corner to a contour of 912 at the southwest corner of the plot. The plot is devoid of woody vegetation (Plate XVIII, Fig. 1); the existing turf is Bermuda grass.

In conjunction with the survey mentioned in the previous chapter, numerous contacts were made with members of the firm of architects, members of the school board, the superintendent of schools, the principal, teachers and custodian of Will Rogers School, and members of the Will Rogers parent-teachers association, in an effort to determine the needs of all of those associated with the school in-so-far as the site plan was concerned. Children, being the prime factor in this problem, contributed their thinking about the school and grounds in reply to personal questions.

## PLATE XIX



Figure 1. Playshed space integral with the building.  
Will Rogers School, Stillwater, Oklahoma



Figure 2. Washington street facade of Will Rogers  
School

Any plan such as this should be based upon the requirements of the people concerned, the specific site location, the general ecology of the area, and the architecture of the buildings. The people expressed their needs through survey forms and personal contacts. For example, one remark heard repeatedly was to the effect that the "school grounds are awfully bare." Another, that "something should be done to improve the vehicular traffic access to the building."

The topography of the site (Contour map, Fig. 2), is a fairly steep slope. The area is bounded on the west by Washington Street, carrying a medium amount of traffic, and on the south and east by streets which have a minimum of traffic. There is no street to the north. The surrounding area is residential. The soil is typical of the prairie country, a red clay, low in organic matter. The southwest corner contains particularly poor soil. Average rainfall for the area is 35 inches, but in the last few years it has been considerably less than that figure. Maximum temperatures reach  $115^{\circ}$  and the minimum may lower to  $17^{\circ}$  below zero. Winter winds are from the north-northwest; summer winds from the south-southwest.

The buildings are constructed of concrete and steel with buff, brick walls, and flat, sloping gravel roofs (Plate XIX, Fig. 2). The first building, the north unit, was scaled to fit children in the first and second grades. Desks, benches, lavatories, drinking fountains, etc. are so designed. The unit now under construction is planned to house third and fourth grade pupils. The site plan takes this fact into consideration.

#### Educational

In integrating the results of the survey with this specific site design problem, the discussion will follow the factors as outlined in the survey returns (Table IV, Pg. 46). The local people, as well as the

general survey, indicated group play as one of the most important factors in this group. Most of the east half of the grounds (Fig. 1) except the auditorium and gymnasium sites are designated as group play area for organized games. The finished grade (Fig. 2) provides about a four percent slope, level enough for play, yet adequate for efficient drainage.

Children's play fields should be scaled down to fit them. A 45-foot softball diamond as recommended by the National Recreation Association,<sup>1</sup> is shown. The outfield falls a little short on one side. Adult diamonds are 60 feet square. There is room for most games except football or baseball on this open turfed area (Plate XI, Fig. 1). Soccer and dodge ball may be played as well as a number of court games on the hard-surfaced area in the southeast corner. Post traps flush with the surface are planned to accommodate removable posts for net games such as volleyball and goal games like basket ball. In addition, the surface can be used after rains and for various games and physical training exercises. Shade trees to the east and south and the building to the west will provide shade. All of the play space is enclosed with fence for safety.

These group play areas are immediately adjacent to the gymnasium site and should prove quite convenient. In addition, spectators may share in the fun by sitting on the curved slope of the area just north of the gymnasium to watch activities in the larger area or on the slope east of the gymnasium to overlook the hard-surfaced space. In both cases shade is provided for afternoons and evenings. The grassed slopes may also be used for play. Hopscotch and shuffle board courts are provided just north of the auditorium. These surfaces may be used for marbles or many other

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<sup>1</sup>Butler, Recreation Areas, Their Design and Equipment. p. 97.



## PLATE XX

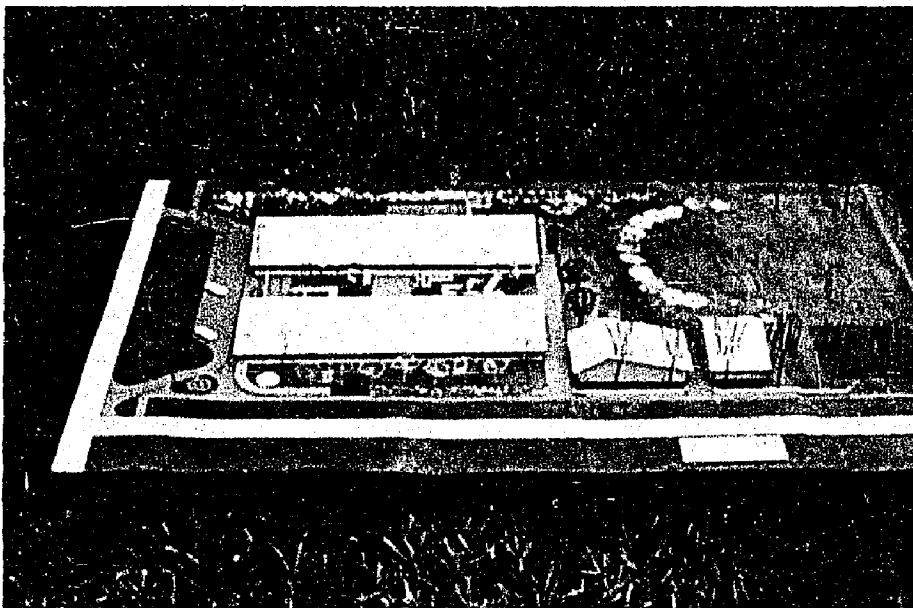


Figure 1. Landscape model of Will Rogers School

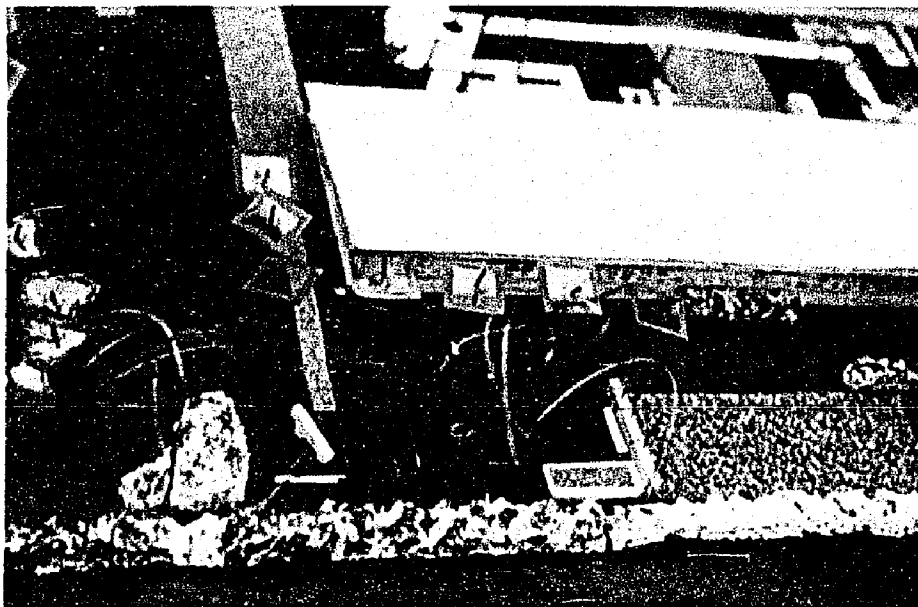


Figure 2. Detail of Primary play equipment area (model)

games. Shade is provided to reduce glare and heat from the concrete.

Areas for individual play. All of the spaces just mentioned could be used by individuals when not occupied by play teams. The slopes of the amphitheater area and the smaller nook north of it provide a place for running and tumbling as well as sledding in the winter (Plate XVIII). The level play area at the base of the slope will bring the sleds to a stop. The third and fourth grade pupils have a quiet play area just south of their building including a large, smooth concrete round for many uses. Each building has the large shady play porches, useful even during a rain or snow storm.

The emphasis on individual play has been placed upon the area for the first and second grade pupils, located just to the northeast of their building (Plate XX, Fig. 2). This area is specifically designed for them and the equipment is selected to be of a type incorporating every safety factor known. Stillwater is one of the towns where accidents some years ago focused attention on the danger of movable play equipment such as swings, see-saws, giant strides, open merry-go-rounds, etc.<sup>2</sup> These were all removed and for some time the grounds were practically devoid of any equipment. Non-movable equipment is now being installed on some playgrounds (Plate X, Fig. 2). This policy is in accord with that of most people contacted on the matter. The equipment designed for the play area at Will Rogers is in keeping with this policy. The sandbox is enclosed in a concrete curb and designed for flushing and cleaning. The area is hard-surfaced with Parascuff, a bituminous asphalt, containing rubber and cork for resiliency. The pattern is opened by modular units to allow

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<sup>2</sup>C. D. Duncan, personal interview.

space for the equipment units placed in tank over gravel. This provides a safe surfacing under and about the units. Units include pipe tunnels of 30-inch vitrified clay storm sewer pipes set in a ten-inch concrete base raised two inches above finished grade. Kiddies enjoy crawling through them or climbing over them and their imaginations can produce many interesting situations.

Traveling rings (Plate X, Fig. 2) provide good exercise and can also foster imaginative play (swinging through the trestops). The jungle gym or climbing castle is a wonderful plumber's pipe dream which brings forth all sorts of exercise and serves as a transition from individual play to group play because group stunts naturally come from its use.

Parallel bars provide a base for numerous types of exercise like "skin the cat," etc. and together with the climbing pole and horizontal ladder give free reign to imagination so important at this stage of development.

The balance beam is a piece of eight-inch pipe set on a concrete base about 15 inches high (Plate X, Fig. 2) and can serve in the imaginative young mind as a log across a raging river for the passage of Davy Crockett (or the latest idol, whomever it happens to be).

Play sculpture, described in some detail previously, is included for its exercise value, its appeal to the imagination and the eye, as well as the part it plays in introducing child to child in natural group activity. This one is conceived as an abstract, sturdy horse-form which can be "ridden" by one or more youngsters, climbed over, jumped from, or crawled under. Constructed of reinforced concrete, it will rest on piers to eliminate concrete underneath.

To the northwest of the north building is a shady area of rolling topography far removed from the noisy group play area where individual

free play may take place. Quiet play may be allowed in the outdoor teaching areas between the buildings.

Outdoor teaching areas. Several spaces have been set aside in the organizational plan for this educational facility. It was one of the factors mentioned as badly needed by the teaching staff and principal of Will Rogers as well as the architects.

The courtyard framed by the two buildings as enclosing elements and partially screened by the serpentine wall to the west (Plate XIX, Fig. 1) has been developed to serve two purposes--outdoor teaching and enrichment (Plate XXI, Fig. 1). The arrangement is such that physical access to the area is easier from the north building than from the south one, yet both may make use of it. The space is organized into two major units with the east area so arranged that its space can be used by two groups at once. This arrangement fits the needs of the curriculum better and provides better design opportunities for both use and enrichment. Orientation and shade pattern differ for the various spaces, allowing choice of the one best suited to the season and hour.

Major traffic flow is discouraged by the enclosing elements. Two brick walls,  $4\frac{1}{2}$  and 3 feet high define the west space but allow air movement and a glimpse into the area (Plate XXI, Fig. 2). Baffles and planting give distinctness to it from the east. The tree-form, multiple-trunked plants to the north discourage but do not prohibit access into the space. They also somewhat limit the view. Circulation provides access to the area where small groups may be seated on the planterbox-seat combination in an L-shape with the teacher on the concrete seat in the interior of the angle. The plants and constructions provide a pleasant atmosphere for the pursuit of education out of doors.

## PLATE XXI

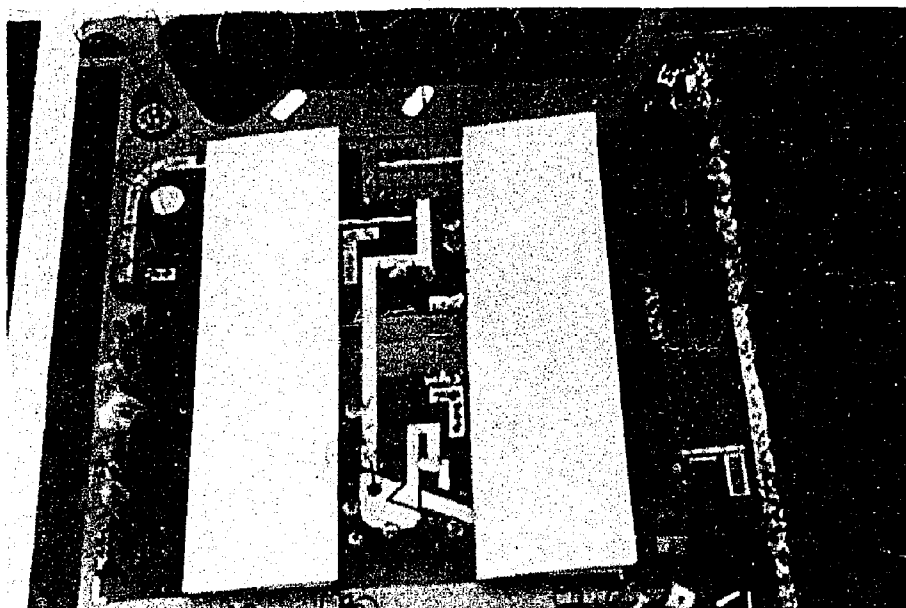


Figure 1. Aerial view of outdoor teaching areas (model)

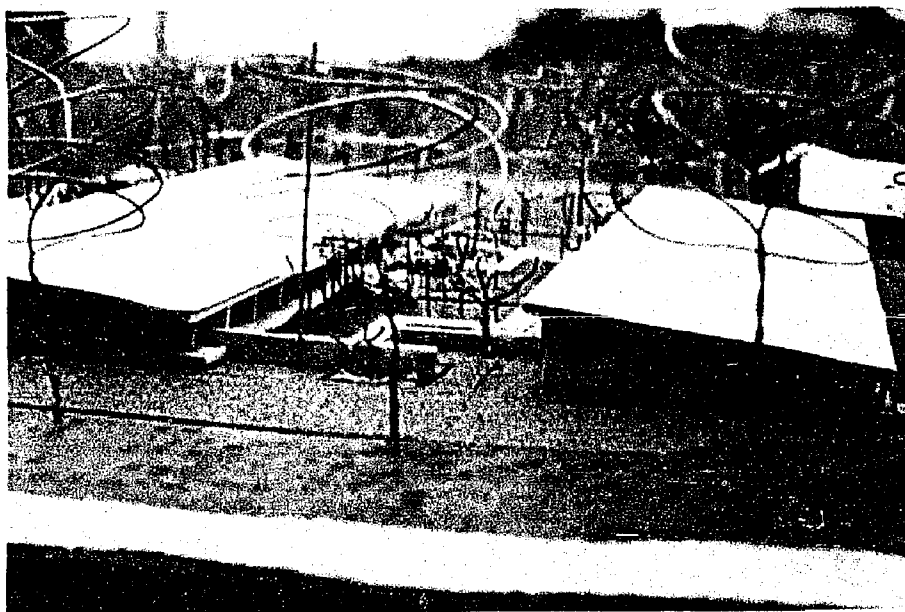


Figure 2. Detail of the west entrance to buildings (model)

The central paved court is open and could serve a number of educational or recreational purposes as well as circulation. The east space is organized into two units of different orientation. Both are defined with baffles, plants and construction. The left one is similar to the west unit but faces differently; the larger is planned to provide seating on the curved concrete bench for the pupils with a sculptural, asymmetrical concrete seat for the teacher in the center. Plants and louvered baffles cut off the view and sound from the group play area to the east. These teaching spaces out-of-doors can contribute much to a well-rounded education for little folks.

The shady bowl in the northwest corner of the grounds provides another such space in quiet, natural surroundings. On occasion, when the play field is quiet the space northeast of the buildings can be so used. In the southwest corner the planter box is also a retaining wall and a seat. Children can sit along the interior curve in the shade with teacher and pupils demonstrating something on the big concrete round.

Nature Study. There are no nature study areas as such but the whole site and its plantings contribute to this important phase of education. Plants have been selected that are adapted to the ecological situation, that will provide seasonal color, textural variety and interesting forms. It is recommended that all plants be labeled with permanent metal tags for the benefit of children and teachers. A number of plants attractive to birds as food or shelter are included. One family whose children attend Will Rogers includes a nationally famous ornithologist, so naturally there is considerable interest in the study of birds.

Growing Plots. A plot for growing plants is located along the north edge of the property (Plate XXI, Fig. 1), near water, and in a fairly

good soil situation. It is curbed with concrete to reduce, if not eliminate, the encroaching Bermuda grass. Curbing, plus chemical fumigation, will control the grass and eliminate the time-consuming task of fighting it. The teachers and children are very much interested in having such a plot where they can sow seeds and observe growing plants.

### Functional

Convenient circulation. This was the chief item of comment during interviews with parents and teachers. There are no walks or drives on the property except the walk from the flagpole toward Washington Street. Parents bringing children to school by car--and many do--drove right up to the west end of the building during inclement weather, making a mudhole at that point. A few loads of gravel were then dumped on the area. This dead-end arrangement is the existing circulation (Plate XIX, Fig. 2).

The design calls for an adequate circulation pattern including vehicular and pedestrian traffic (Fig. 2 & Plate XX, Fig. 1). A driveway enters at the southwest corner and parallels the west end of both classroom units. Passengers can step out on the sidewalk and immediately walk under the wide overhanging roofs (XXI, Fig. 2). The parking area includes space for the cars of all staff members, existing and future, plus a few extra spaces for visitors. A row of shade trees is planned to cast shade on the area most of the day and particularly in the hot afternoon period of fall and spring (Plate XXI, Fig. 1). This parking and drive will be curbed and surfaced and is already under contract to be constructed this summer (1955).

The large, roofed playsheds are connected by walks at both ends. Walks on the west follow the drive to the public walks. On the east side a small service walk connects with the smaller children's play equipment

area to the north. Toward the south it connects with the auditorium and the gymnasium as well as the public walk. All walks are of concrete construction.

The arrangement of trees, shrubs, and construction allows passage of power mowers throughout the grounds. The gate in the east fence is wide enough to allow a service pickup truck to enter the playfield area.

Grading for proper drainage and usability. The grading plan (Fig. 2) shows the existing grade and the proposed cut and fill to bring it to finished grade. This includes consideration of the floor elevation of the second building unit and provision for fill on the auditorium and gymnasium sites to hold the change in floor elevation to a minimum, at the suggestion of the architects and engineers. This requires a retaining wall to hold the fill south of these buildings. The entire area was surveyed by the author prior to the preparation of this plan--and was checked against other surveys. A drainage problem at the east end of the area between the buildings is handled with a drain grid and drain tile under the walk. Adequate surface drainage is provided for the rest of the area.

The slope east of the classrooms and north of the auditorium is graded into a pleasing, natural open bowl to serve as spectator seating near the play field and as a play surface for climbing, tumbling and sledging. Two smaller bowls for play or teaching use are included--one just to the north of the large one, and the second near the northwest corner of the grounds.

In the high southwest corner the planter box also serves as a retaining wall, standing between two elevations. The play field is graded to produce a relatively level area with a four percent slope for adequate



drainage. All buildings are well drained.

Ease of Supervision. The teachers at Will Rogers often are aided during play periods by health, physical education and recreation majors from the nearby college campus who help with supervision. Both the topography and planting contribute to ease of supervision. Except for the outdoor teaching area in the court there is little eye level planting adjacent to the building; therefore a good view may be had from both buildings. Most shrubs are located along the north boundary. This plan provides a view for students and teachers who spend the day there, rather than for the passing motorist or pedestrian. The old "foundation planting" designed chiefly for the passerby, usually covered up the windows before long. Large trees and smaller, ornamental trees, whose trunks contribute to spatial definition but do not block out vision, make up the majority of plant materials.

Climate controls. This is an important factor in Oklahoma and due consideration is given to it in the plan. Both the teachers and administrators commented on the blowing dust. In part, this comes from off the site due to exceptionally dry weather conditions in the past few years, but a great deal originates on the area. The establishment of trees and a good turf will reduce this problem to a minimum. Dust from the site will be particularly eliminated and that coming in will be filtered out in part by the vegetation. The grassing of new home sites to the south will also contribute a great deal to solving the problem.

Many references by teachers and parents pointed out the need for shade trees as being quite important in their opinion. The existing bare site stands in mute testimony to this fact. The need is adequately filled by the plan, calling for a variety of well-adapted species placed advantageously in reference to time and space. The row of large trees between

Washington Street and the drive will provide shade on the drive and parking area as well as across the west ends of the classrooms. Aesthetically, their shadow pattern will add interest to the buildings, and accoustically, they will absorb much of the sound of traffic from the street, although the latter is not a major problem at this time. The smaller outdoor teaching and play areas are shaded. Two of the large trees on the north boundary shade the little folks' play area. To the west of it where a tree's roots would interfere with the garden plot a louvered shade frame filters the afternoon sun.

South of the south classroom one large tree protects the area in the vicinity of the concrete round (XIII, Fig. 1). The shrub and small tree planting are so placed in relation to the building as to take maximum advantage of their shade and air flow control. This arrangement is according to White's experimental work in Texas.<sup>3</sup> Trees south of the auditorium and gymnasium shade them and the southern portion of the playfield. The latter receives morning shade from the trees to the east and afternoon shade from the hill itself plus the semi-circle of small trees on the slope.

The shelter provided by the two classroom buildings sets up a microclimate in the space between. Ventilation in fall and spring comes from air flow over the roof and around the west end of the south building, caught by the larger serpentine wall and passing over the smaller one. Cold winter winds are reduced to a minimum by the north building and the large wall.

In addition to the above, trees serve as natural evaporative air conditioners in a relatively dry climate, filtering, moistening and thereby

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<sup>3</sup>White, op. cit.

## PLATE XXII

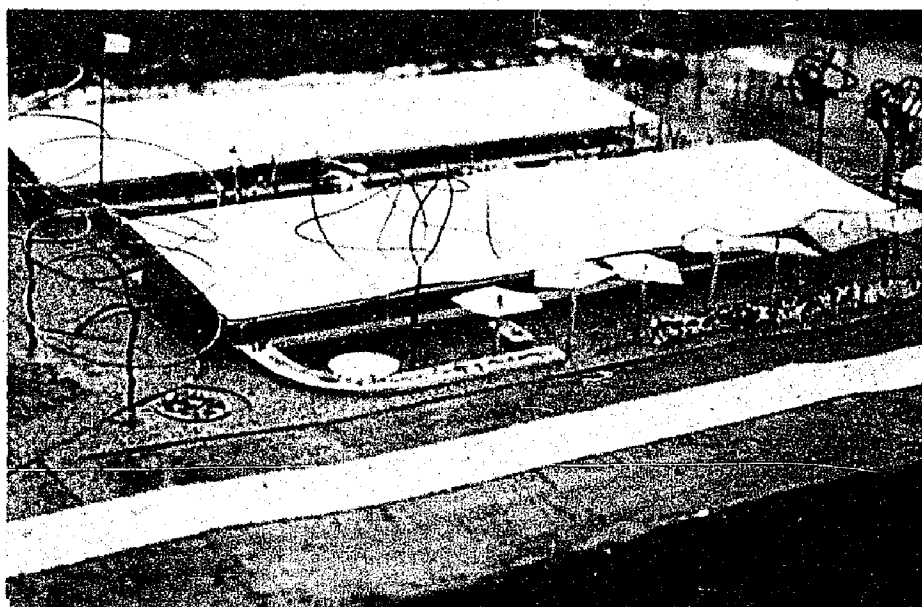


Figure 1. Detail of the southwest corner  
of the site (model)

cooling the air. Too, the perimeter plantings serve as sound barriers, reducing the noise from the playgrounds and thus its nuisance value in the residential neighborhood. The large, covered playsheds, integrated with the classroom buildings provide considerable space protected from the weather. Plantings are arranged to reduce glare and diffuse the natural light and thus provide another aid to the educational environment.

Surface stabilization. One might call this erosion control, which is a considerable problem on steep slopes. All of the soil surfaces and slopes on this site, not held by retaining walls, can be sodded with Bermuda grass and maintained satisfactorily. Certain areas are hard-surfaced for specific reasons of usage. A small area under a tree in the southwest corner is planted to ground cover.

#### Visual

Integration of building and site. The low, architectural design is such that, with the integrating influence of some trees on the site blending into trees in the neighboring areas and softening the harsh bareness of the buildings as now seen, much of this need will be met. The repetition of the building materials in some of the construction features such as retaining walls and planter boxes will extend the buildings, so to speak, out into the space and serve to fuse the elements into an entity. In similar fashion lines of plants repeat the lines of the building in the adjacent space which also serves other uses. This, too, is a quite different approach than the old "foundation planting" concept.

Good indoor-outdoor relationships. Here again the architectural design contributes a great deal to the fulfillment of this factor through the provision of physical and visual access to the out-of-doors. The south walls of each classroom in both buildings are practically all glass,

protected by the wide overhang. In both cases interesting views are arranged by use of areas enriched with plants and other materials. Views are selected to provide a changing scene with the passing seasons.

The north walls are full of windows, too, but have sufficient wall below to block much of the view except a general one.

Enrichment of the landscape. This is but one of the several facets of landscape design. It contributes more directly to the visual enjoyment of the environment perhaps than any other and thus, to many people, seems the most important. On the Will Rogers plan the development begins with the establishment of an interesting topography, good, green turf, and the selection of such major elements as trees in variety. Textures vary from the fine foliage of the honey locust to the coarse, large leaves of the sycamore; colors, from the rich, glossy, dark green of the ash to the duller yellow green of the sycamore; forms, from the graceful round, spreading crowns of the elms to the more erect, compact ash. The variety of sizes ranges from small crabtrees and hollies to the towering pecans.

Seasonal color begins with the redbud flowers in the early spring and progresses through the pink crabapple blossoms and bright yellow gold-rain trees to the summer foliage greens, and then in the fall the yellows and browns gradually blend into the winter landscape. Even in winter there is color interest in trunk and twig. The sycamore is particularly attractive at this season with its vari-colored bark.

The shrubs, too, add their bit with textures, forms and colors. Between the classrooms particular effort has been made to provide a satisfying visual experience (Plate XXI, Fig. 1) intended to contribute to the children's education and enjoyment. The view through the crapemyrtle trunks into the space includes green grass and gray concrete surfacing, buff brick planters rich with hibiscus and other blooms, contrasting with the

building wall and the brown of the redwood baffles. The yaupon leaning over the wall casts a shadow pattern over the scene and also adds color with its green foliage and bright red berries. Across the paved court, itself embellished with a pattern of header boards, is the second unit likewise planned for maximum attractiveness and usage.

In addition to the seasonal effect of the plant materials there is the stabilizing impression received from the construction elements. Paving, planters, walls, and baffles of varied colors, textures, and forms add enrichment to both the surfacing and enclosing components by contrasting with the greens of lawn and foliage and the colors of flowers and fruits. Sun and shadow affect the overall view, providing interesting and ever-changing impressions.

Surfacing. Previously this was discussed as a soil binding factor. It should also be approached as an aesthetic consideration. The molding of the soil surface into interesting forms designed to please the eye, especially when emphasized by shadow patterns, has been incorporated into the plan. Most of the actual surface cover is Bermuda grass turf. Some hard surfacing such as that in the court is designed to be interesting to look at as part of the design pattern as well as to serve utilitarian purposes. In the southwest corner the large, concrete round adds to the interest, as does the similar round of ground-cover nearby.

Organizing outdoor spaces with enclosures. This applies first to the grounds as a whole, set aside by trees and fencing to define the space, and then to the various use areas within the property and previously described. This is essentially the organization of space for human use and enjoyment. We humans live in a three-dimensional world and must be concerned with the volume of air above a given area as well as the two-dimensional

surface itself. Thus space is most important. It is well illustrated in the case of the area between the classrooms because of those physical enclosing elements. The existing enclosures are supplemented by a second section of serpentine brick wall repeating form, texture, and color but not the size of the first wall (Plate XXI, Fig. 2). It is three feet high and the other is four and a half feet high. It is so placed as to partially screen the area and discourage major traffic flow but to allow ample circulation to fit the situation. The gray concrete walk proceeds through the west space in a manner allowing the pedestrian maximum view of the enriching elements and flows across the open, central court and through the east space, passing under the shade tree and out at the northeast corner (Plate XXI, Fig. 1). This element serves to relate the two spaces together as does the repetition of forms and materials used in the baffles, planter boxes, and treeform elements. For variety, though, the location of these within the space is quite different.

The constructed elements (seats, planter-seat combinations, etc.) serve to help define the spaces in which they are located and unify the design. The space in the east area is organized into two units by the baffle, yet related by the spireas on each side and the concrete slab passing under the baffle. Near the east walk the crapemyrtles and the baffle screen out the area from the walk and playfield beyond.

#### Community Use

Stillwater has not yet adopted the park-school concept but the plan is under discussion. It is particularly applicable to the Will Rogers site situation due to the fact that two blocks immediately to the north of the school, although plotted, do not have any houses upon them at this time. The area includes a nice grove of elm trees (Plate XIX,

Fig. 2) and a small drainage system. The school and the park department would both benefit greatly if this plot were acquired by the city. The proposal has been presented to the Master Planning Board and awaits their reaction.

Members of the community now use the grounds in the evening for various recreational activities ranging from softball to flying model airplanes. The proposed acquisition would provide space for many other activities such as picnics, games requiring larger space than is now available, and possibly a wading pool, for example. Supervision would necessarily need to be supplied by the Park and Recreation Board.

In case this plan materializes, the rest rooms of the buildings have outside entrances and could be used without allowing access to classrooms. Too, the future gymnasium could be designed with these service facilities in mind. It could also be used as a source of supply for play equipment.

It is hoped that the property will be purchased and developed along the lines discussed, thus providing not only recreation but a center of community interest to revive that valuable asset of years past--neighborhood spirit. It would provide for the children's educational and recreation needs after hours and during vacation periods and thus complete the program designed to produce good citizens.

This overall plan advances the Will Rogers educational unit from just a group of fine school buildings on a bare plot of ground to a comprehensive area of organized space wherein the outdoor spaces are as carefully arranged, equipped, and enriched as the indoor spaces; and through the design elements and arrangements the indoor and outdoor spaces are so related as to integrate the whole.



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- Crossman, Letha V. Elementary School Teacher, Jefferson School, Ponca City, Oklahoma. 1955.
- Elfner, Joseph S. Assistant Professor of Horticulture (Landscape Architecture), University of Wisconsin, Madison 6, Wisconsin. February 7, 1955.
- Englehardt, N. L., Sr. Member of firm, Englehardt, Englehardt and Leggett, Educational Consultants, 221 West 57th St., New York 19, N. Y. 1955.
- George, N. L. Assistant Superintendent of Schools, Oklahoma City, Okla.
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- Harris, Al. Superintendent of Schools, Clinton, Oklahoma. 1955.
- Hasterlik, Therese, The Athletic Institute, 209 South State Street, Chicago 4, Illinois. June 11, 1954.
- Hopkins, Barbara. Administrative Assistant, National Citizens Commission for the Public Schools, 2 West 45th Street, New York 36, N. Y. January 22, 1954.
- Hubbard, Frank W. Director, Research Division, National Education Association of the United States, Washington 6, D. C. January 12, 1955.



McClurkin, W. D. Director, Division of Surveys and Field Services,  
George Peabody College for Teachers, Nashville 5, Tennessee.  
June 15, 1954.

Madison, John H. Instructor, Department of Landscape Management, Uni-  
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Miller, Warren P. President, American Playground Device Co., Anderson,  
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Nash, John D. Sales Department, Recreation Equipment Corp., 724 West  
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Otto, R. H. Head, Department of Landscape Architecture, University of  
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Payne, J. Win. Superintendent of Schools, Ponca City, Oklahoma. 1955.

Peterson, I. L. Assistant Professor, Department of Landscape Architec-  
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Quinlan, L. R. Professor of Landscape Design, Kansas State College,  
Manhattan, Kansas. January 13, 1954; November 30, 1954.

Royston, Robert. Member of firm of Eckbo, Royston and Williams, Land-  
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Sasaki, Hideo. Professor of Landscape Architecture, School of Design,  
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Sourdry, Amedee M. Landscape Architect, Park Department, City of Oak-  
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Steffe, D. M. Office Manager, Game-time, Manufacturer of All-Steel  
Public Play Equipment, Litchfield, Michigan. August 2, 1954.

Taylor, J. L. Specialist for Planning School Buildings, Office of Edu-  
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White, Leonard. Principal, Riverside Elementary School, Blackwell,  
Oklahoma. 1954.

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Whigham, E. L. Director of Research, The School Executive, 470 Fourth Avenue, New York 16, N. Y. January 28, 1954.

#### PERSONAL INTERVIEWS

Baumgartner, Mrs. F. M. Member of Parent-Teacher Association, Will Rogers School, Stillwater, Okla. PhD in Ornithology.

Byrom, Jack A. Associate Professor of Education (Physical Education), Oklahoma A. & M. College, Stillwater, Oklahoma.

Caudill, William W. Member of firm, Caudill, Rowlett, Scott and Associates, Architects, Bryan, Texas and Oklahoma City.

Chapel, Mrs. Raymond. Vice-president of Parent-Teacher Association, Will Rogers School, Stillwater, Oklahoma.

Clarke, Lewis (A.S.L.A.). Professor of Landscape Architecture, North Carolina State College, Raleigh, N. C.

Deer, George H. Professor of Education, Department of Education, Louisiana State University, Baton Rouge, La.

Duckwall, Ralph. Member of Board of Education, Stillwater, Oklahoma.

Duncan, C. D. Head, Department of Rural Sociology, Oklahoma A. & M. College, and member of the Board of Education, Stillwater, Oklahoma.

Glover, E. E. President, Will Rogers Parent Teachers Association, Stillwater, Oklahoma.

Hamon, R. L. Chief of School Housing Section, U. S. Office of Education, Washington, D. C.

Kevin, James J. Head, Department of Health, Physical Education and Recreation, Oklahoma A. & M. College, Stillwater, Oklahoma.

King, J. H. Principal of Jefferson and Will Rogers Schools, Stillwater, Oklahoma.

Landry, Kenneth C. Partner in firm of Bodman, Murrell, and Smith, Architects, Baton Rouge, La.

Marshall, Carl E. Associate Professor of Mathematics (Statistics), Oklahoma A. & M. College, Stillwater, Oklahoma.

McNeely, Simon A. Office of Education, U. S. Department of Health, Education and Welfare, Washington, D. C.

- Pena, William M. Member of firm, Caudill, Rowlett, Scott and Associates, Architects, Bryan, Texas and Oklahoma City, Oklahoma.
- Quinlan, L. R. Professor of Landscape Design, Kansas State College, Manhattan, Kansas.
- Rowlett, John. Member of firm, Caudill, Rowlett, Scott and Associates, Architects, Bryan, Texas and Oklahoma City, Oklahoma.
- Russell, R. R. Superintendent of Schools, Stillwater, Oklahoma.
- Sasaki, Hideo. Professor of Landscape Design, School of Design, Harvard University, Cambridge, Mass.
- Scott, Wallis, E. Member of firm, Caudill, Rowlett, Scott and Associates, Architects, Bryan, Texas and Oklahoma City, Oklahoma.
- Seagers, Paul W. Educational Consultant, University of Indiana, Lafayette, Indiana.
- Singleton, W. B. Site Planner, Baton Rouge, Louisiana.
- Sorenson, H. E. Associate Dean and Associate Professor of Education, School of Education, Oklahoma A. & M. College, Stillwater, Oklahoma.
- Swanson, A. E. Principal, Louisiana State University Laboratory School, Baton Rouge, La.
- Vaughan, H. Leland. Chairman, Department of Landscape Architecture, University of California, Berkeley, California.
- Will Rogers teaching staff - five members. Stillwater, Oklahoma.
- Wilber, Philip A. College Architect, Oklahoma A. & M. College, Stillwater, Oklahoma.

## APPENDIX

## SCHOOL-LANDSCAPE QUESTIONNAIRE

A survey of the needs of the elementary schools of today relative to the site planning and landscape design of the grounds is being made. The following opinion questionnaire includes items which various educators and planners have considered worthy of inclusion in such plans. Would you please rate the first ten items numerically to indicate how they rank in your estimation, reserving number one for the most important, and continuing in that order:

- \_\_\_\_\_ Facilities for nature study.
- \_\_\_\_\_ Proper attention to grading and drainage.
- \_\_\_\_\_ Improvement and enrichment in the appearance--the atmosphere--of the school grounds and buildings through planning and planting.
- \_\_\_\_\_ Inclusion of dust, wind, and sound barriers.
- \_\_\_\_\_ Facilities for keeping pet animals.
- \_\_\_\_\_ Outdoor lighting facilities.
- \_\_\_\_\_ Convenient loading zones for cars and busses.
- \_\_\_\_\_ Growing plots where plants (trees, shrubs, flowers and vegetables) can be planted and observed and cared for by the students.
- \_\_\_\_\_ Consideration of community use of the grounds for various activities.
- \_\_\_\_\_ The creation of enclosures--fences, walls, or plantings.
- \_\_\_\_\_ A wooded park-like area.
- \_\_\_\_\_ Specific inclusion of shade trees.
- \_\_\_\_\_ A cave.
- \_\_\_\_\_ Convenient circulation through the use of walks, drives, and access ways.
- \_\_\_\_\_ Provision for outdoor classroom areas.
- \_\_\_\_\_ Proper attention to safety considerations.
- \_\_\_\_\_ Adequate, safe playground equipment adapted to age group.
- \_\_\_\_\_ The inclusion of water forms (pools, etc.)
- \_\_\_\_\_ A plan which will permit student participation in the care of the grounds.
- \_\_\_\_\_ An outdoor theater area of simple design.
- \_\_\_\_\_ Establishment of recreation areas, including some hard surfaced area.
- \_\_\_\_\_ Plans for ample parking areas with a minimum of on-grounds space for small sites combined with parking on nearby streets.
- \_\_\_\_\_ Planning which requires minimum maintenance.
- \_\_\_\_\_ Consideration of the site, buildings and surroundings in blending the units into the environment.
- \_\_\_\_\_ Convenient service facilities.
- \_\_\_\_\_ Consideration of the integration of building and site through indoor-outdoor relationship.
- \_\_\_\_\_ Others: \_\_\_\_\_

Comments:

# SCHOOL-LANDSCAPE QUESTIONNAIRE

A survey relating to the site planning and landscape design of contemporary elementary schools is being conducted as part of a graduate study problem in an effort to determine those factors thought to contribute the most to the proper planning of elementary school grounds. It is assumed that careful attention to safety considerations, minimum maintenance, and planning for future development should be included in all such plans.

Would you, as one who is interested in one of the several related phases of this work, please check the three factors you consider the most important in each of the four classifications listed below and make any additions which you feel should be included. Any comments relative to the improvement of the environment about our elementary schools would be greatly appreciated.

## I. EDUCATIONAL (check three)

1. Outdoor teaching areas
2. Nature study areas
3. Cultivated growing plots
4. Areas for individual play
5. Areas for group play
6. \_\_\_\_\_

## II. FUNCTIONAL (check three)

1. Convenient circulation (foot and vehicular traffic, loading zones)
2. Grading for proper drainage and usability
3. Surface stabilization (turf or hard-surfacing)
4. Climate controls (sun, wind, dust, and rain barriers)
5. Ease of supervision (visibility, enclosure, etc.)
6. \_\_\_\_\_

## III. VISUAL (check three)

1. Integration of the buildings and structures into the site.
2. Enrichment of landscape (colors, textures, and forms)
3. Organizing outdoor spaces with enclosures (fences, walls, plantings)
4. Surfacing outdoor spaces (lawn, ground cover, concrete).
5. Attaining good relationships between the indoor and outdoor spaces.
6. \_\_\_\_\_

## IV. COMMUNITY USE (Facilities for supervised use after school hours)

1. Playgrounds
2. Outdoor theater
3. Outdoor teaching areas for group meetings
4. Service facilities (rest rooms, equipment check room)
5. Nature study areas
6. \_\_\_\_\_

Comments:

900

Sand  
Box

TANBARK

IT IS SPRAINT AFTER SPEC. NAT. REC. ASSOC.

907.0'

T  
EP

900

4' C. ... ..



908

EXIT

Boon Boon

2" Redwood HEMLOCK BOARDS

FLY SCREEN #

LIVING ROOM  
REAR PORCH  
BARRIO

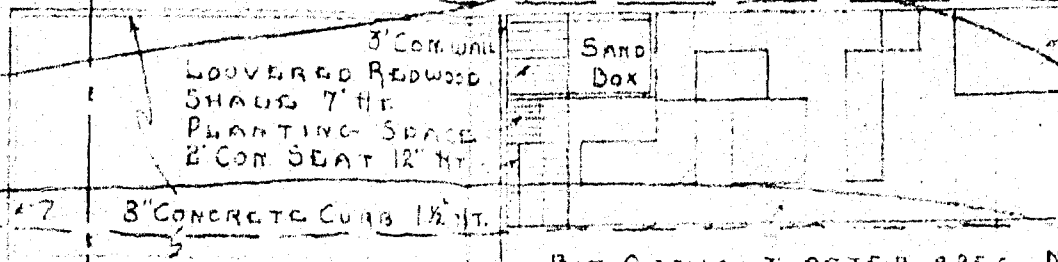
STAFF

REAR EX WALL  
BOON BOON 3' HT

SEAT/PLANTER 12' HT

PARKING

907



LOUVERED REDWOOD  
SHADE 7' HT.  
PLANTING SPACE  
3' CON. WALL  
3' CON. CURB 1 1/2' HT.

SAND  
BOX

TANBARK

BIT. ASPHALT AFTER SPEC. NAT. REC. ASSOC.

ROOM BUILDING

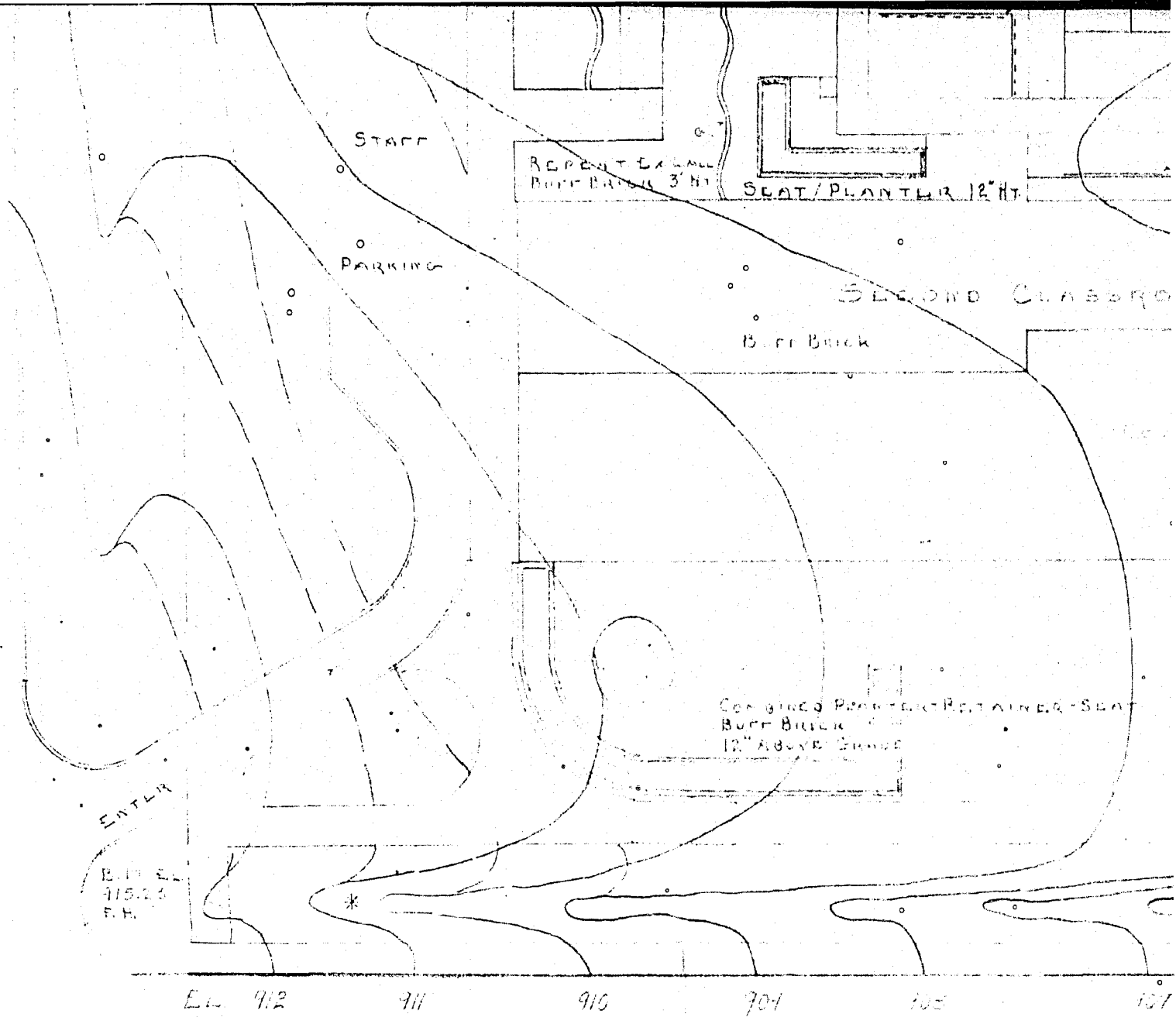
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DER BOARD

CONCRETE  
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THR 12' HT.

ORN. BACELL



# LEGEND

CONCRETE

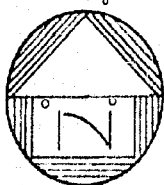
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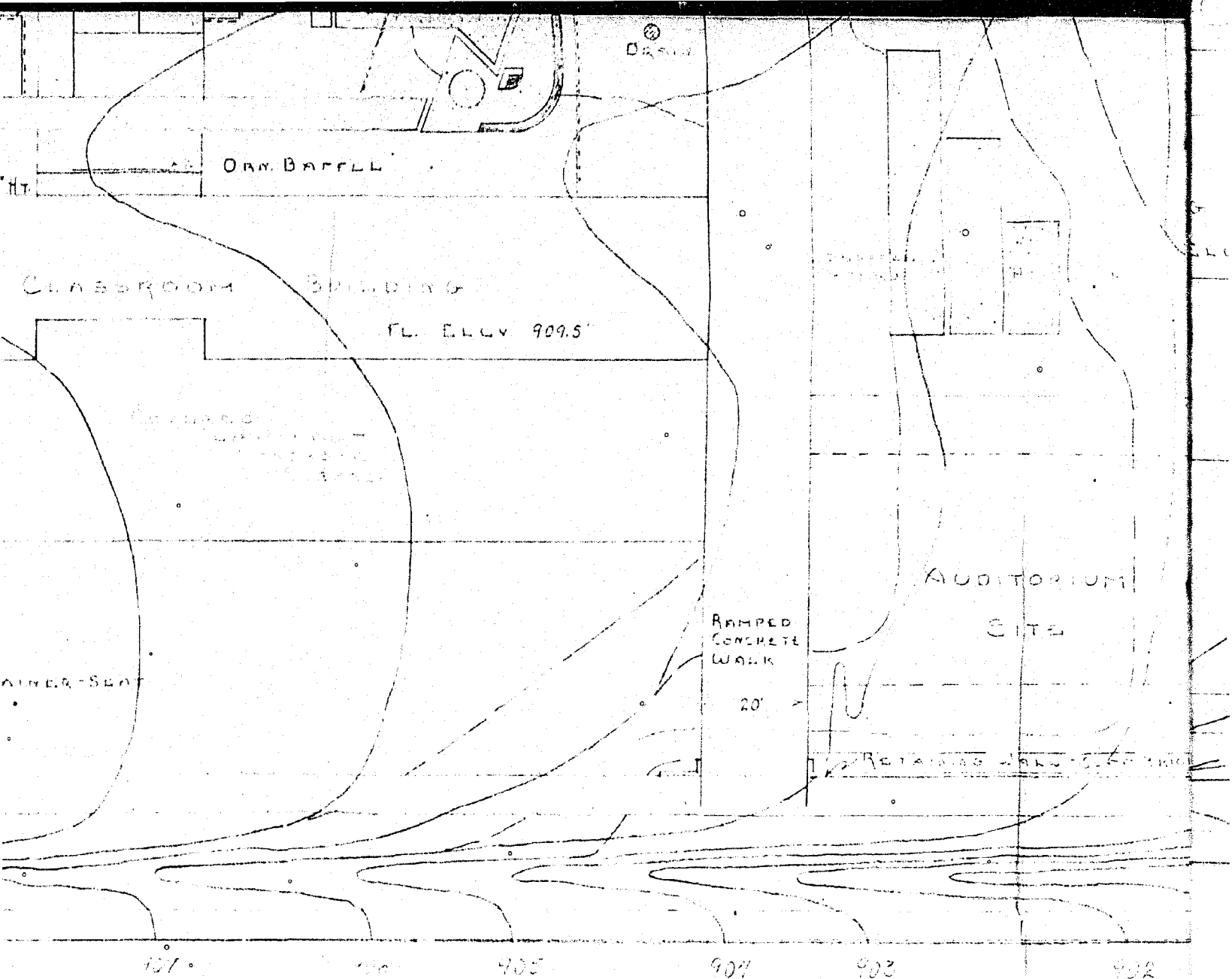
—G— GAS LINE

—S— SEWER LINE

—W— WATER LINE

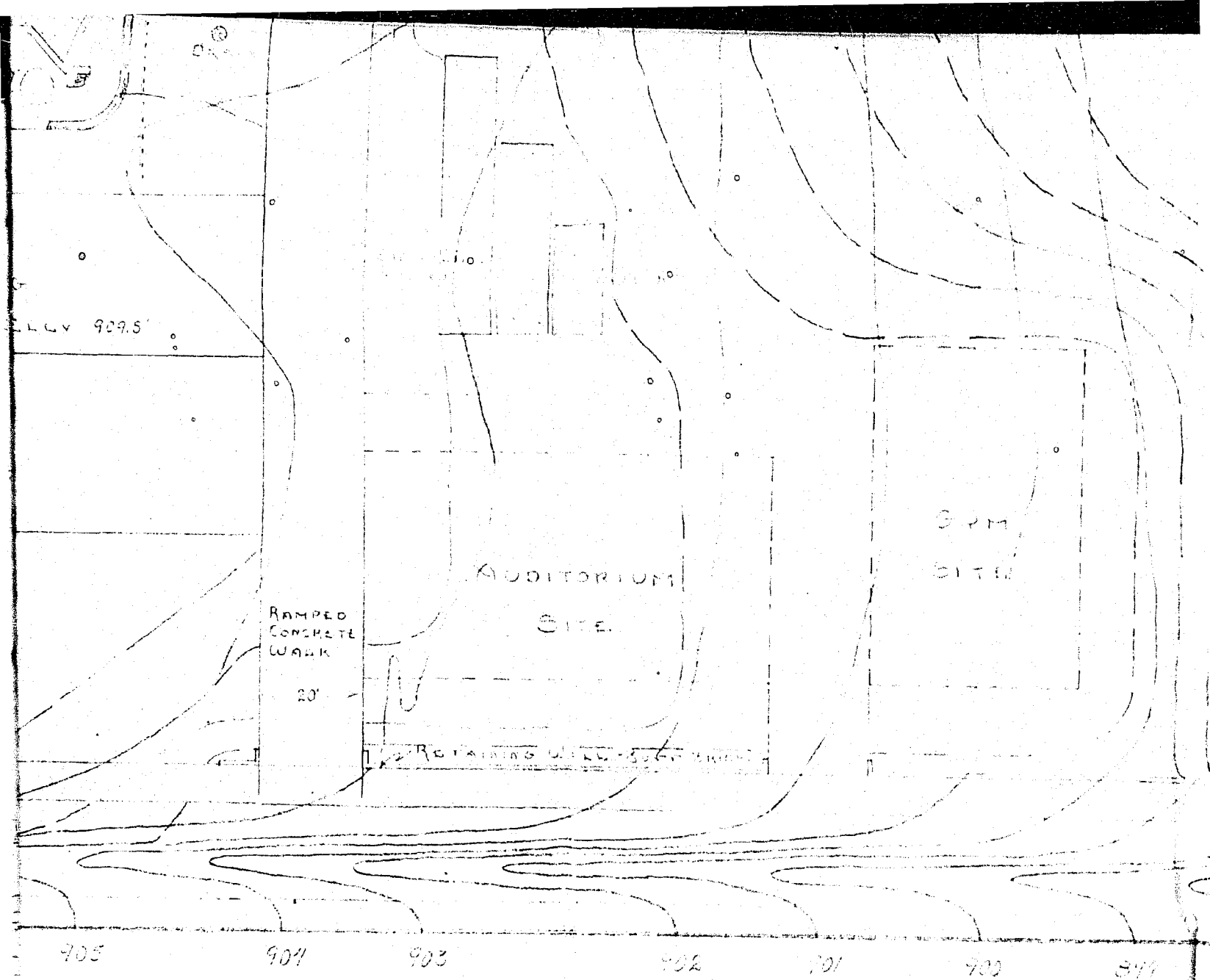
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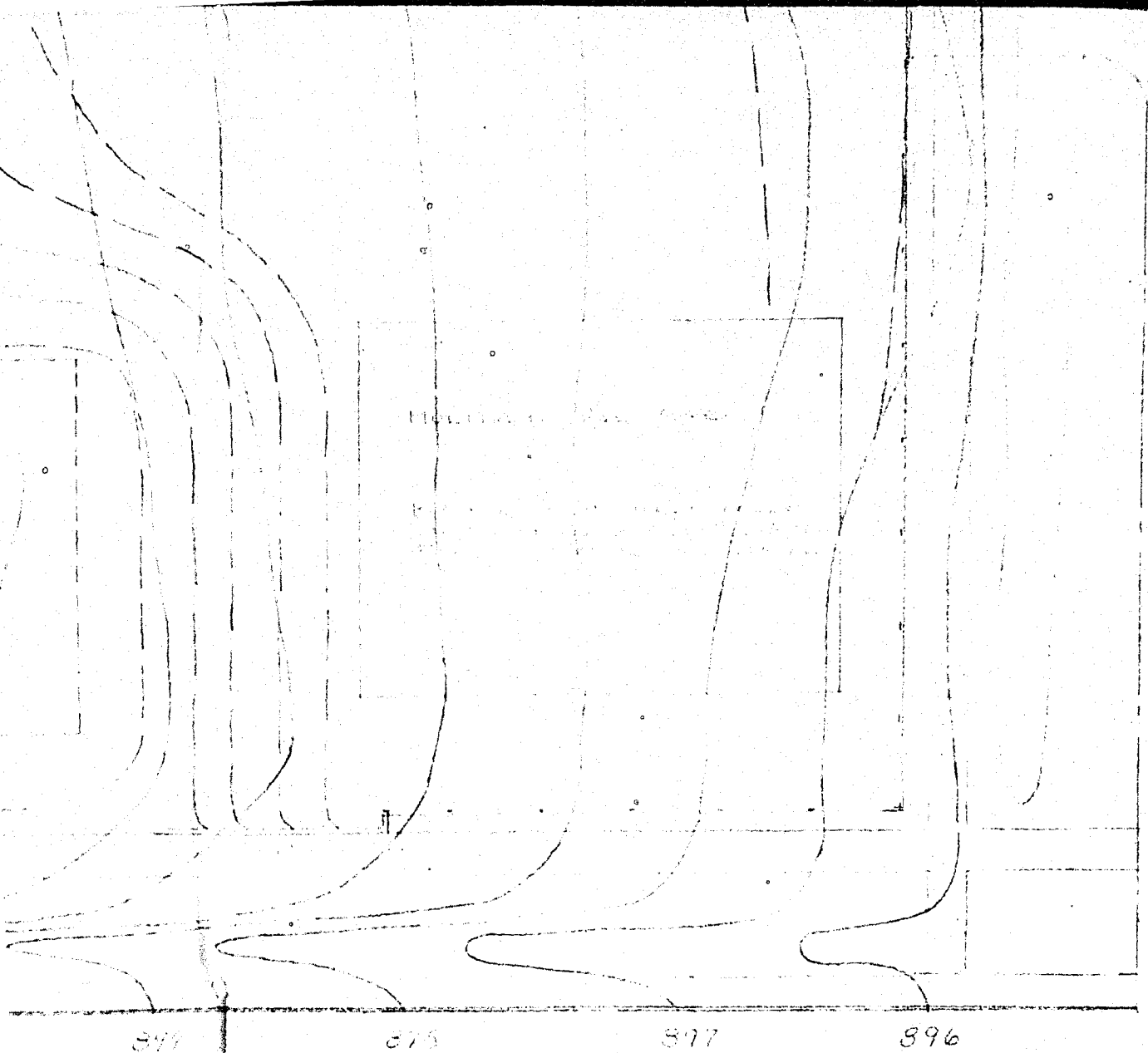
WILL ROGERS SCHOOL

STILLWATER OKLA



ROGERS SCHOOL

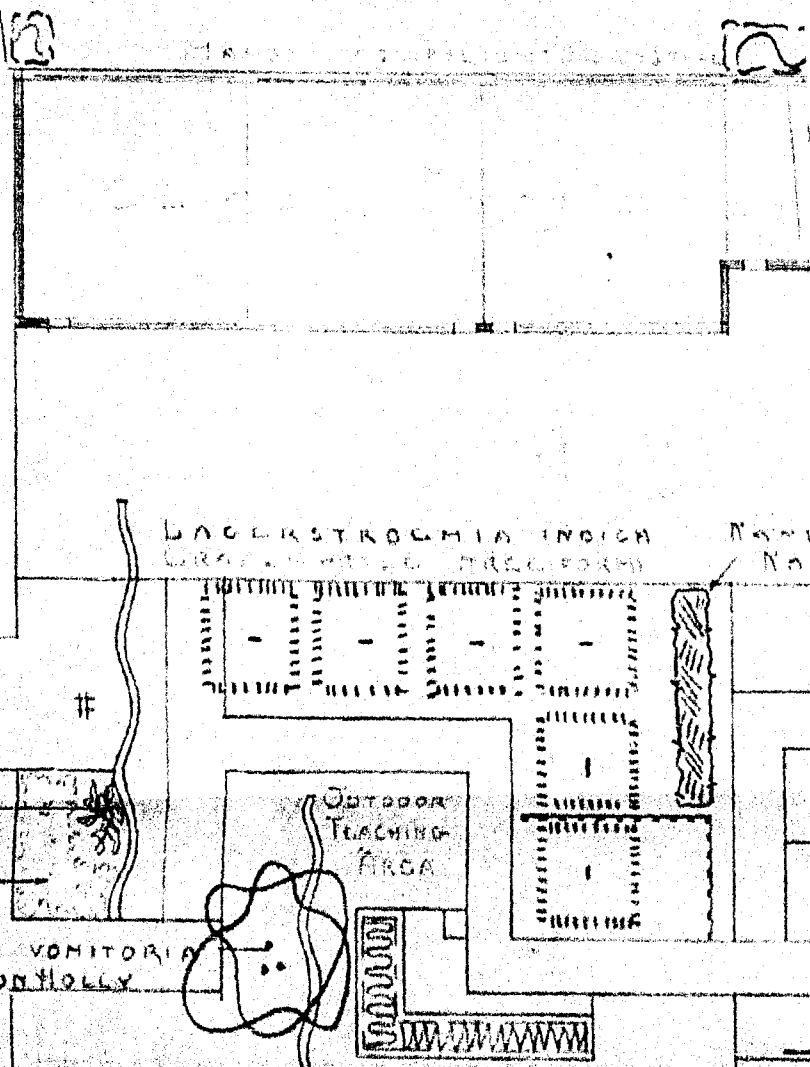
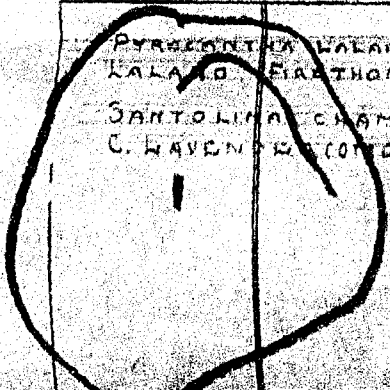
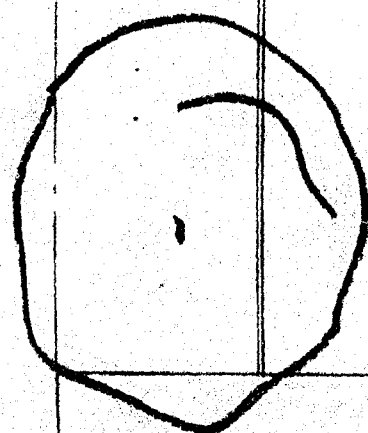
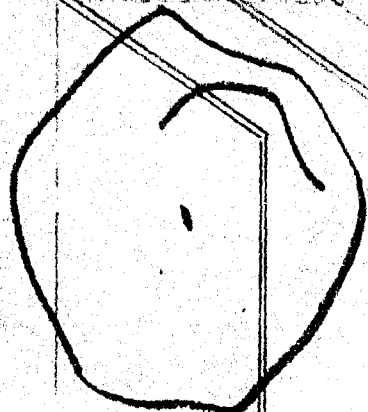
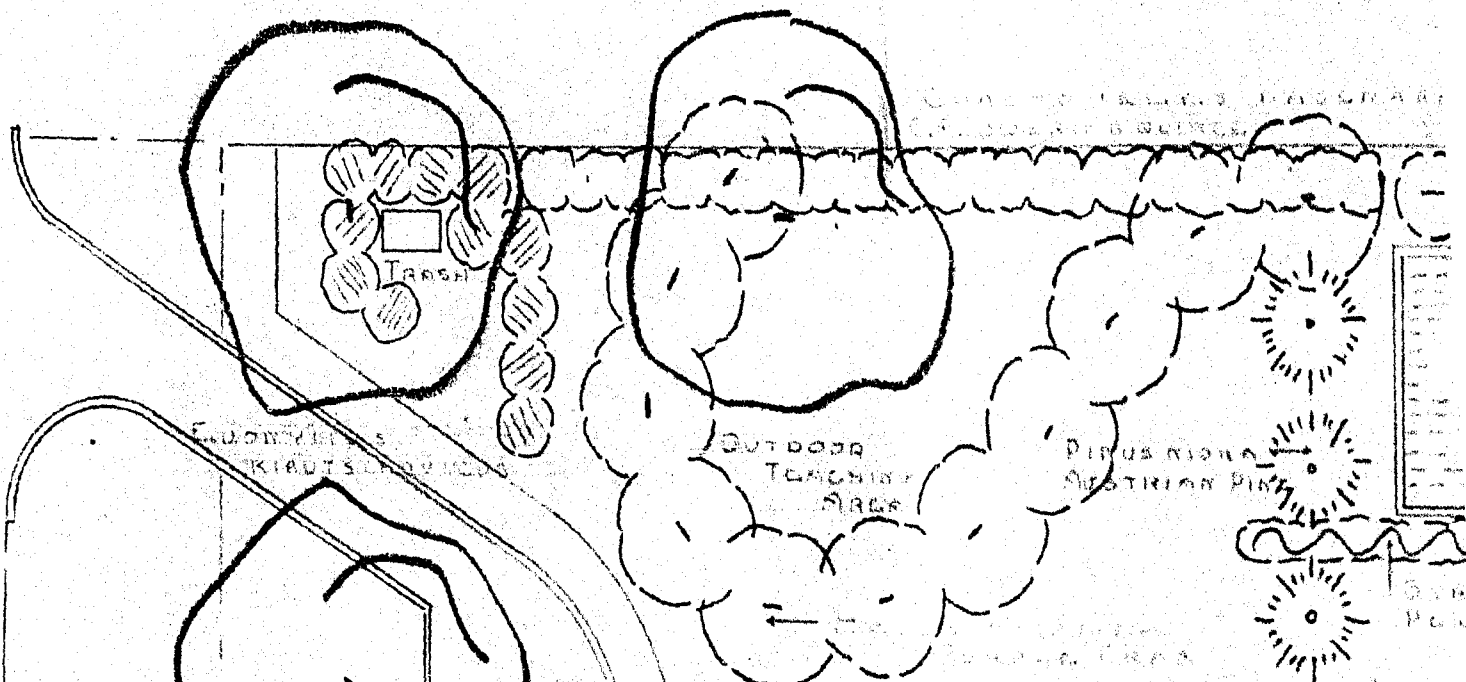
STILLWATER OKLAHOMA



GRADING PLAN

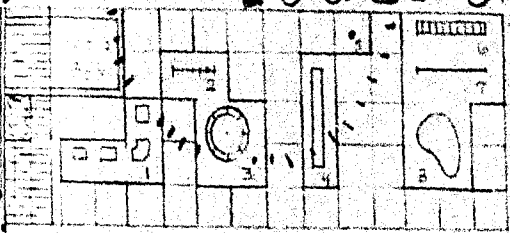
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LANDSCAPE DESIGN  
WILL ROGERS SCHOOL  
STILLWATER OKLA  
ROBERT P. EALY L.A.  
15 JUNE 1955

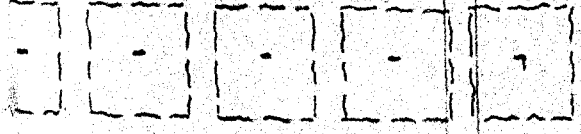


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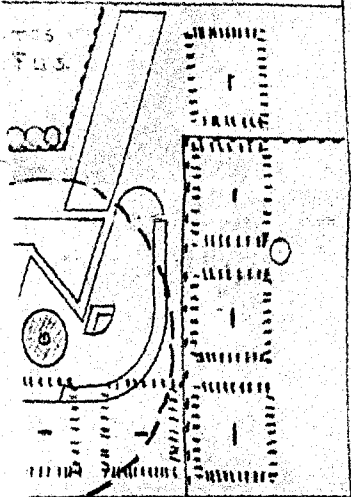
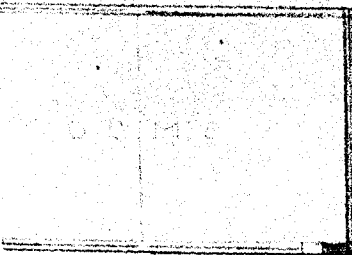
- |                    |                  |
|--------------------|------------------|
| 1 PIPE TUNNEL      | 5 CLIMBING POLE  |
| 2 TRAVELLING RINGS | 6 HORIZ LADDER   |
| 3 JUNGLE GYM       | 7 BALANCE BEAM   |
| 4 PARALLEL BARS    | 8 PLAY SCULPTURE |



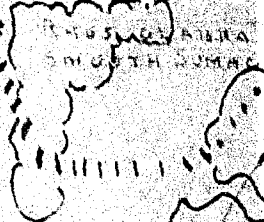
INDIVIDUAL PLAY AREA  
GRADES 1 & 2



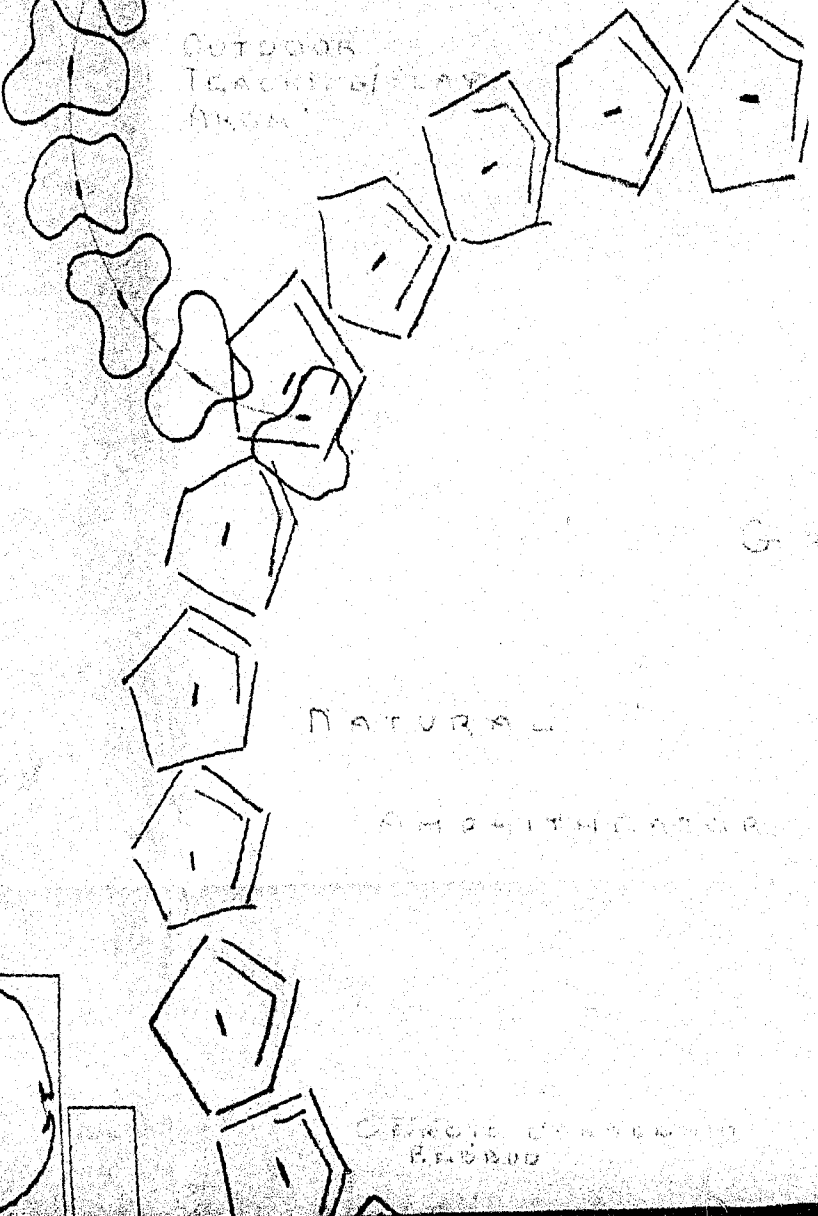
RECREATION ORNAMENTAL  
OUTDOOR TREES



ENR. LANCELOTTA



OUTDOOR  
TEACHING/PLAY  
AREA

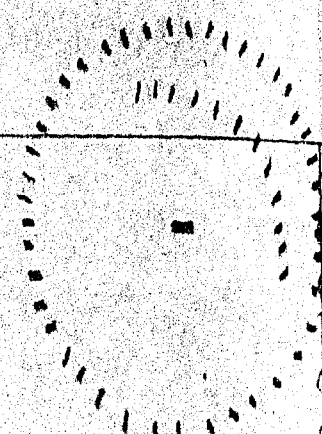
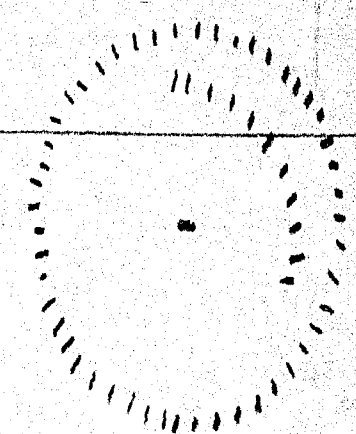
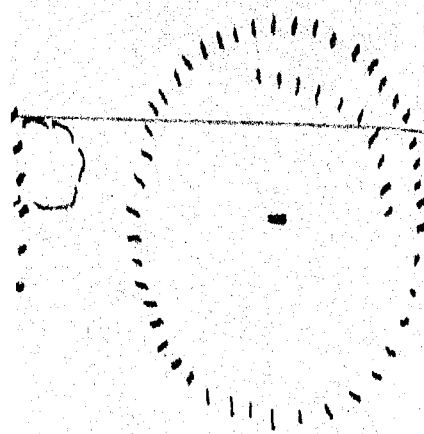


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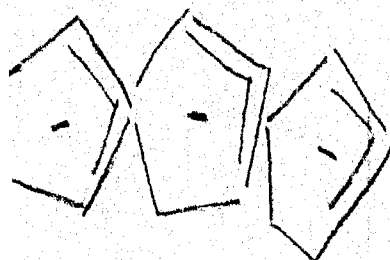
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GEORGE LANCELOTTA  
RECORD



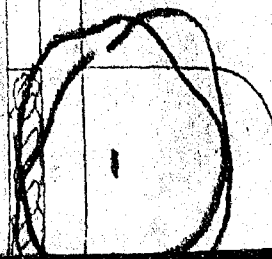
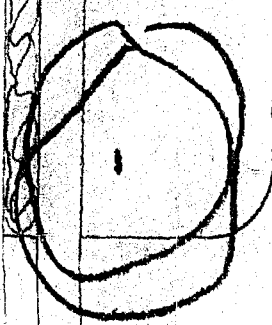
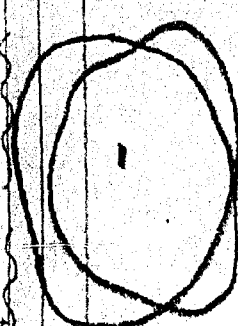
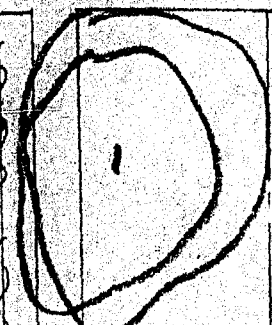


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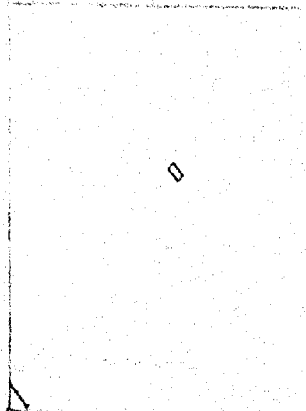
CLEMATIS  
BRACKMANI

ABELIA GRANDIFLORA  
GLOSSY ABELIA



G. 20.1

AREA

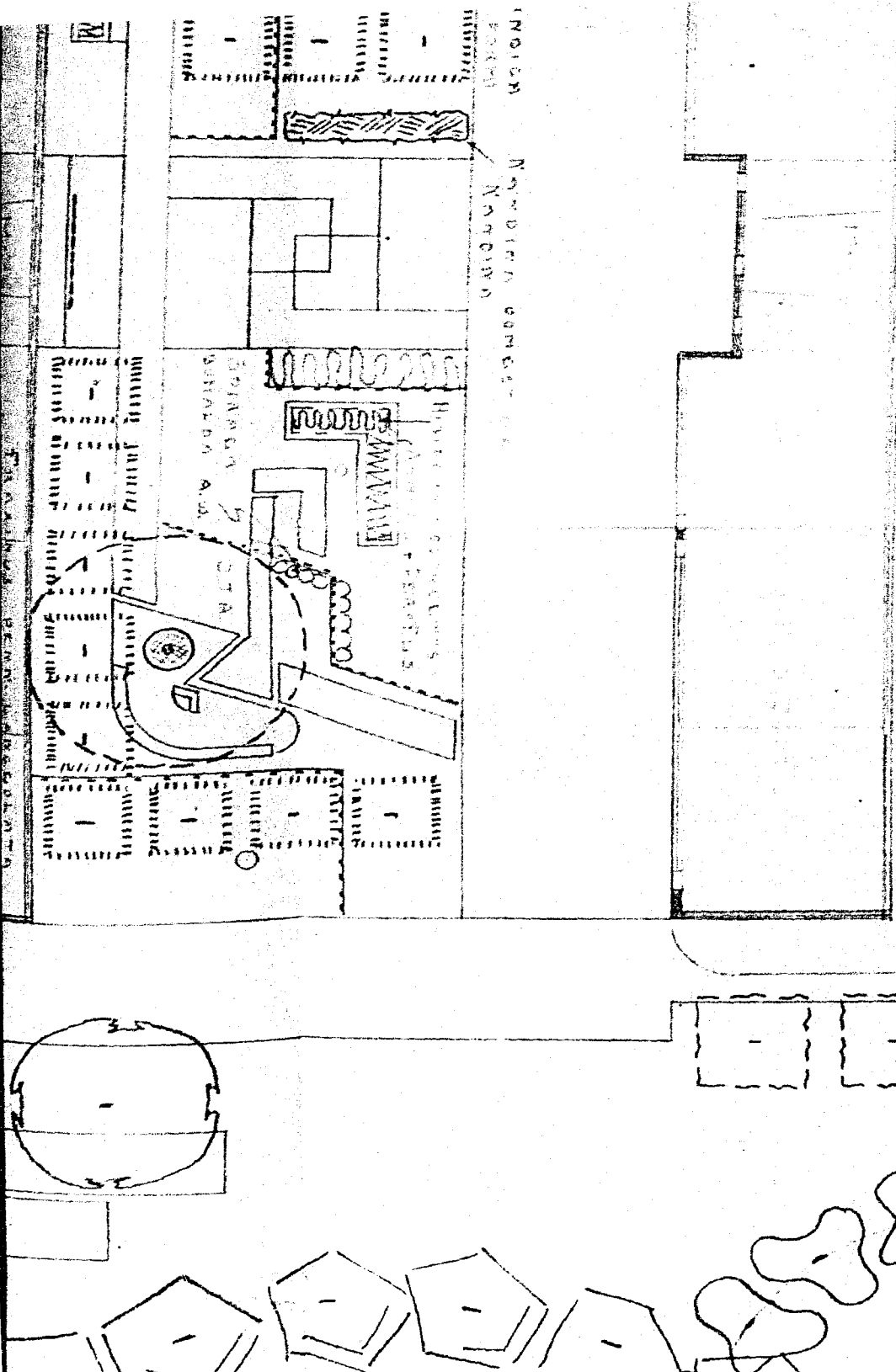
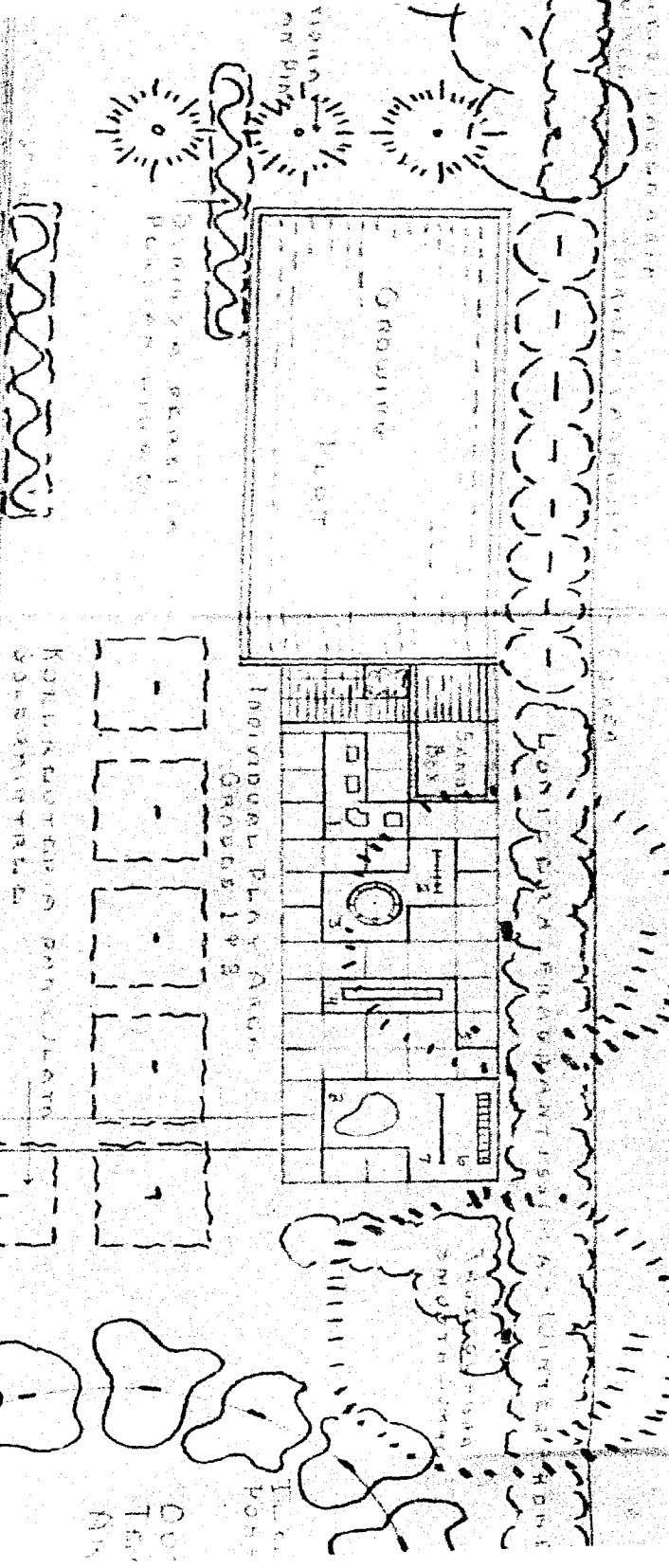


C. 20.1

ST. 10.1

ST. 10.1

- PRIMARY EQUIPMENT
- 1. DIRT JUNGLE
  - 2. TRAVELING RINGS
  - 3. DIRT GAMES
  - 4. PAPER GLASS
  - 5. CLIMBING POST
  - 6. HOLES LAZAR
  - 7. BATTLE OF BIRN
  - 8. PUPPETS



PURCHASING LACANDI  
LALAND EIRATHIAN  
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C. WARDEN C. ETON

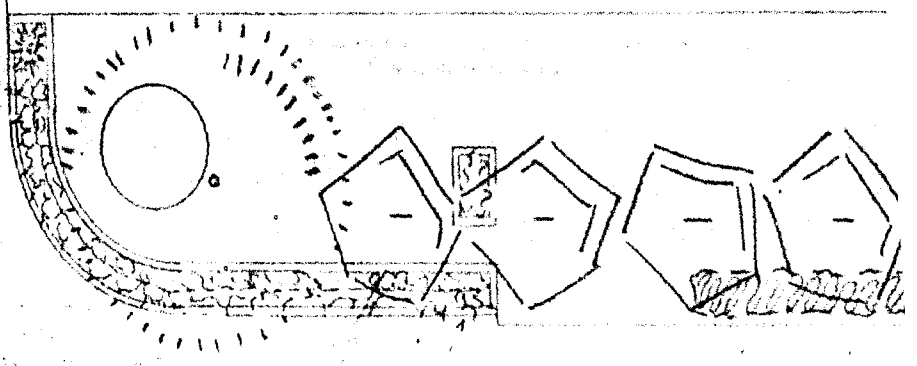
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TEACHING  
AREA

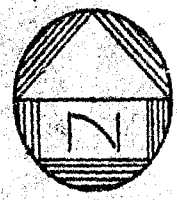
ILLER VOMITORIA  
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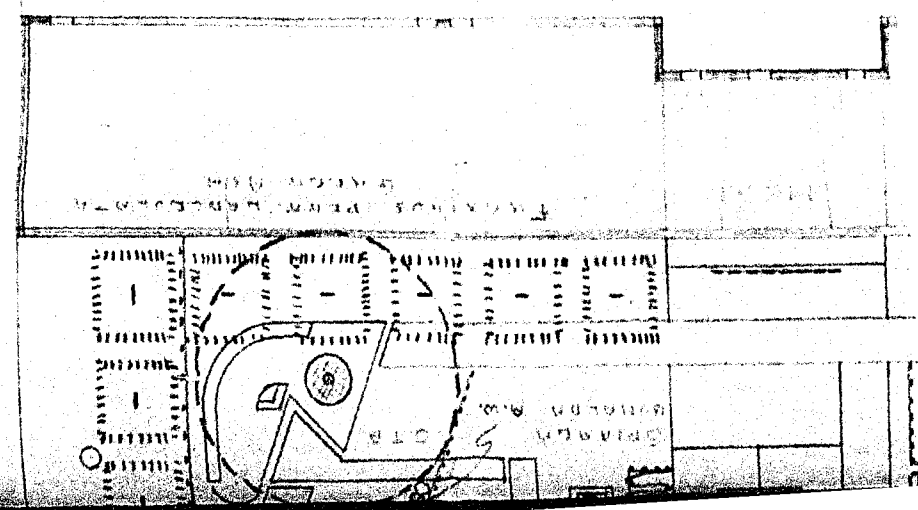
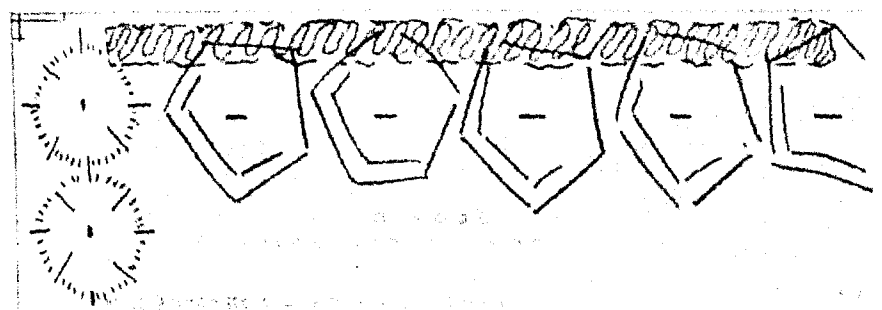
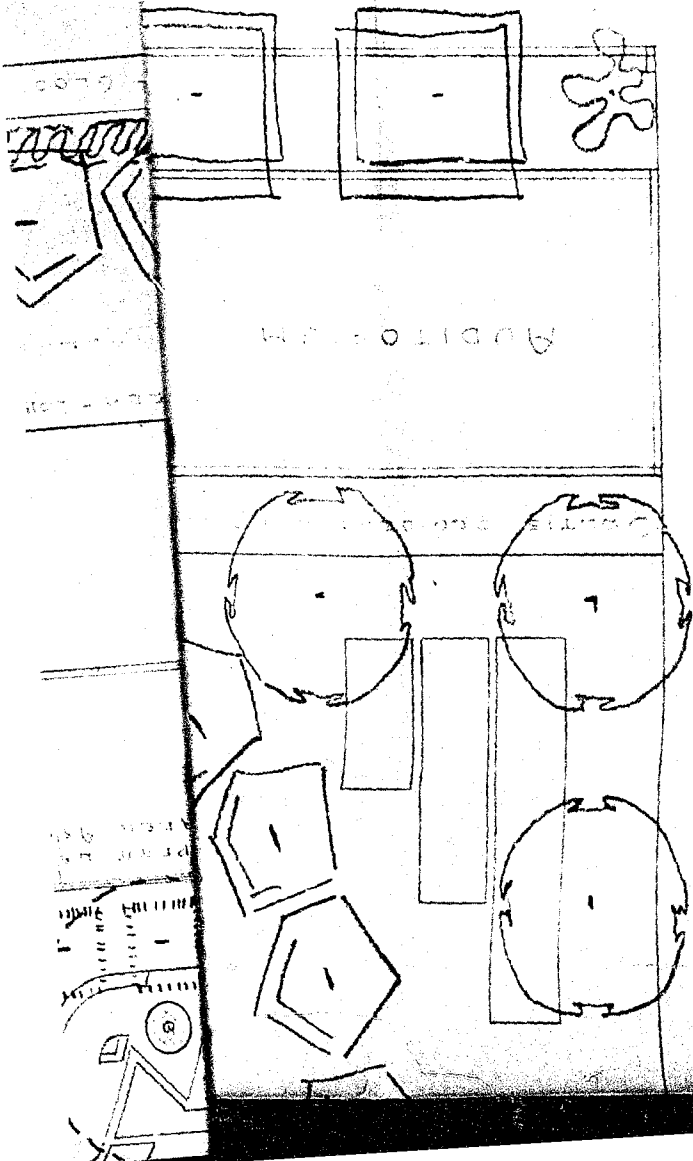


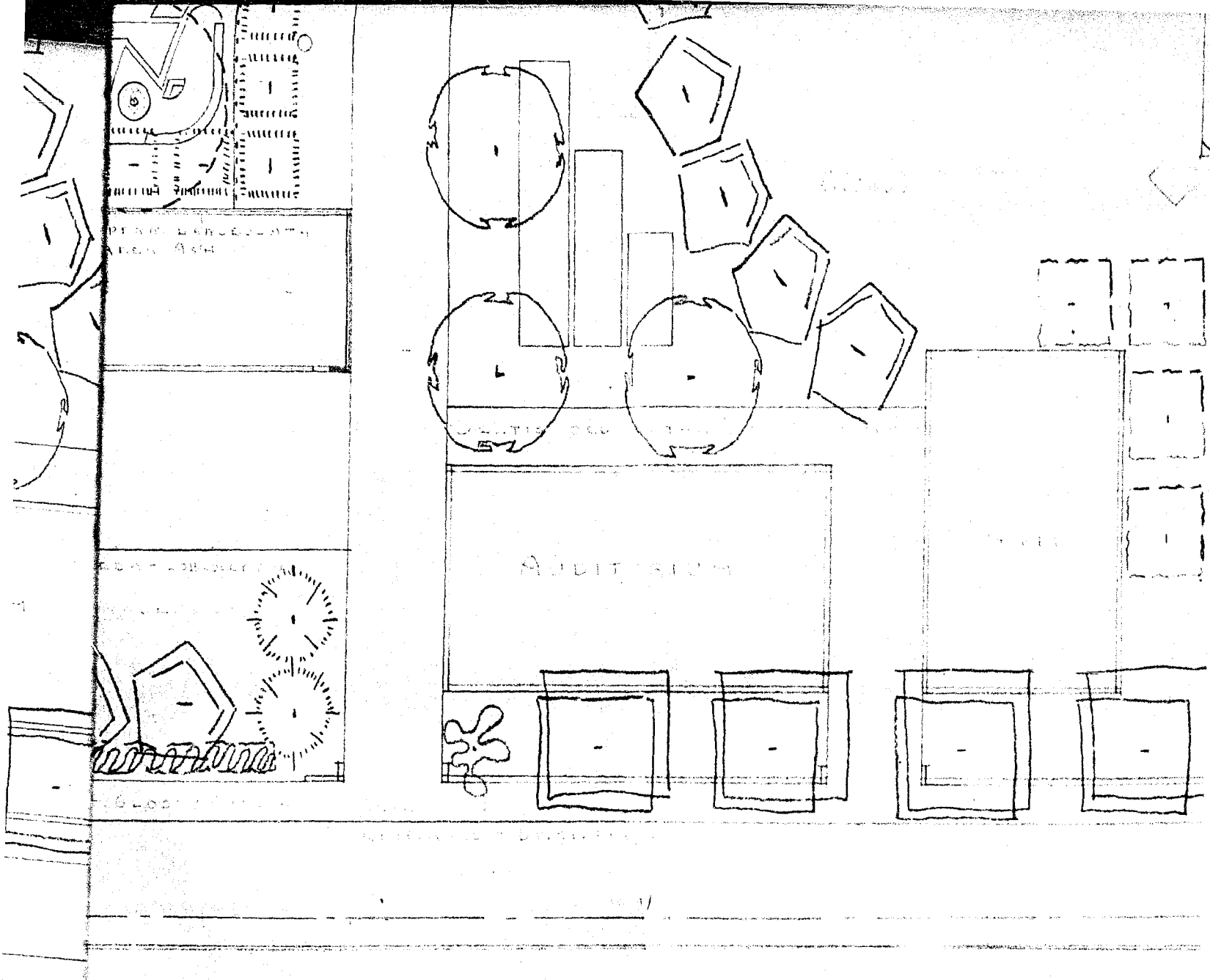
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STILL WATER OKLAH

HILL ROGERS SCHOOL

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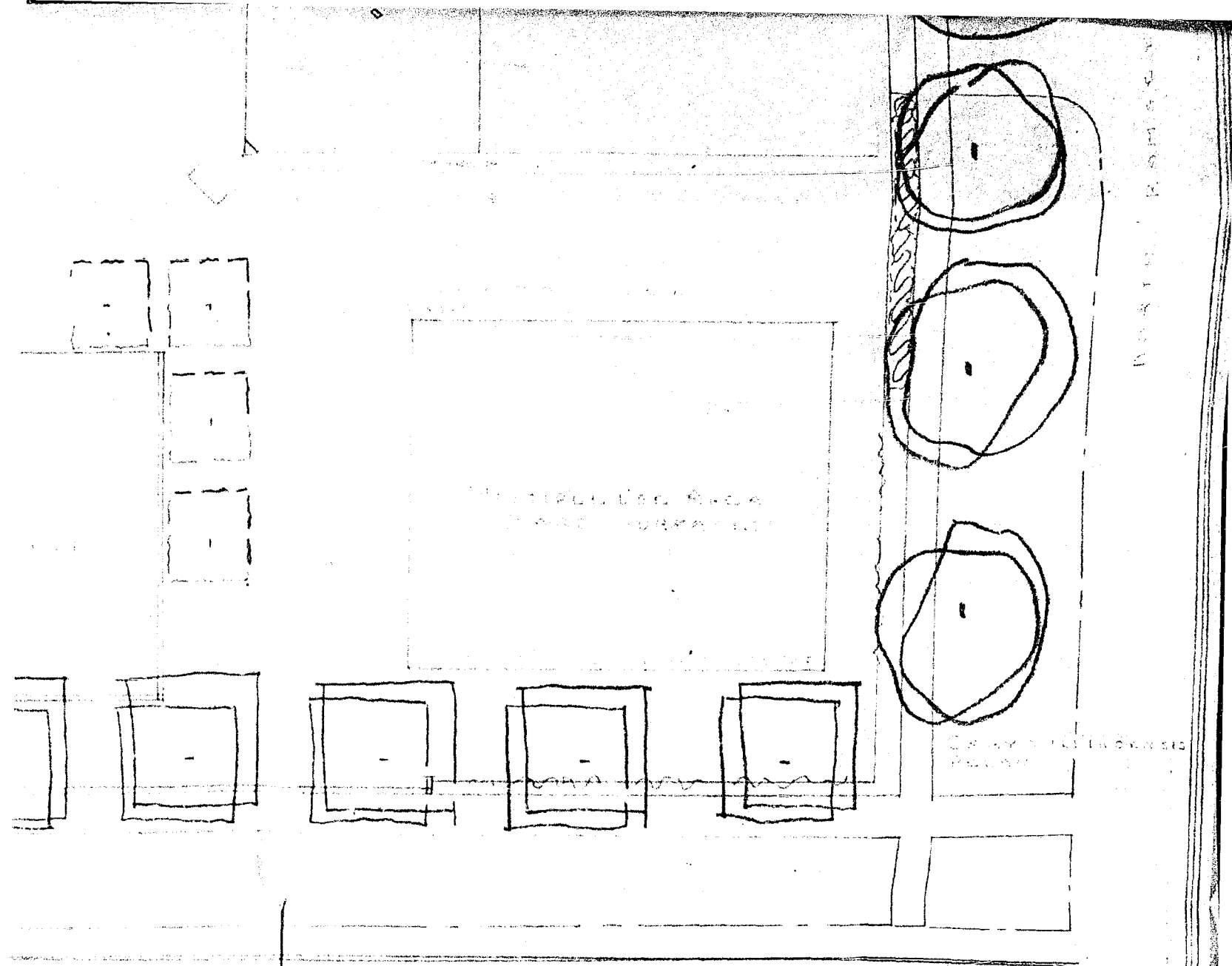




BRIDGES AVENUE

# ROGERS SCHOOL

STILLWATER OKLAHOMA



# LANDSCAPE DESIGN PLAN

SCALE 1"=20'

LANDSCAPE DESIGN  
WILL ROGERS SCHOOL  
STILLWATER OKLA.

ROBERT P. EXLEY L.A.  
15 JUNE 1955

## VITA

Robert Phillip Ealy was born in Kay County, Oklahoma, July 6, 1914. After graduating from Blackwell High School in 1932 he worked for Paul's Gardens Nursery in Blackwell, Oklahoma until 1937 when he entered Oklahoma A. & M. College at Stillwater. He received a B. S. degree with special mention in Horticulture in 1941. The following year he accepted an assistantship at Kansas State College and began work on an M. S. degree in Landscape Design.

He was called into the army in August, 1942 and served until March, 1946, reaching the rank of first lieutenant. From January, 1944 to March, 1946 he served on the staff and faculty of the Army Ground Forces Intelligence School.

After completion of his army service he continued his work at Kansas State College and received his M. S. degree in Horticulture (Landscape Design) in August, 1946. The following month he began his duties as Assistant Professor of Landscape Design at Oklahoma A. & M. College, his present position. The 1952-53 school year was spent in residence study at Louisiana State University, doing advanced graduate work in the Departments of Horticulture and Botany.

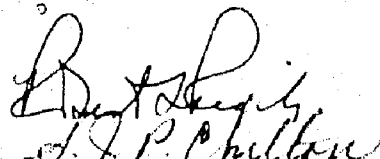
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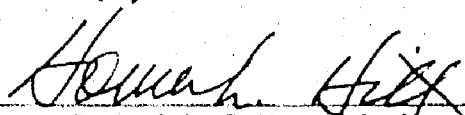
Candidate: Robert P. Ealy

Major Field: Horticulture - Botany

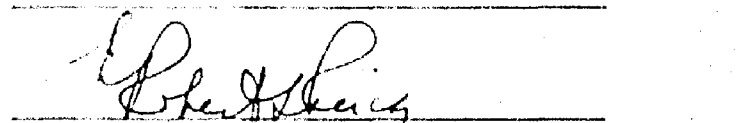
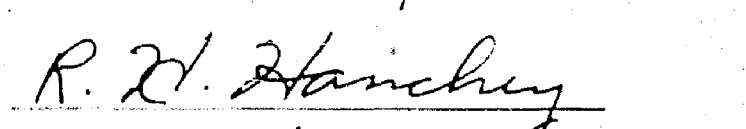
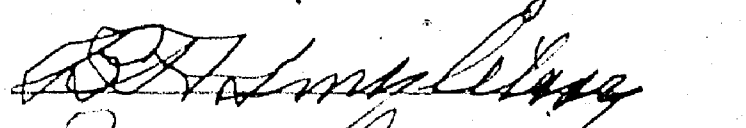
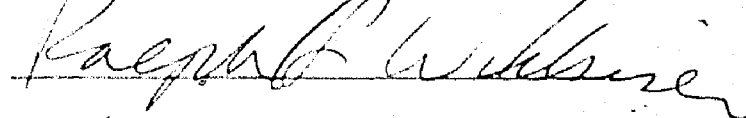
Title of Thesis: Landscape Architecture in Relation to Contemporary Elementary Schools

Approved:

  
Major Professor and Chairman

  
Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

July 15, 1955